CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

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Draft Guidelines for the Safe Use and Reuse of Water in Food Production and Processing (Annexes on water re-use in fish and fishery products (renamed from Fishery products) and on the production of milk and milk products (renamed from Dairy Products)

Comments in reply to CL 2024/01/FH

Comments of Argentina, Australia, Canada, Colombia, Ecuador, India, Japan, Kenya, Morocco, New Zealand, Norway, Peru, Philippines, Saudi Arabia, United Arab Emirates, United Kingdom, Uruguay, USA, ICBA and IDF/FIL

Background

1. This document compiles comments received through the Codex Online Commenting System (OCS) in response to CL 2024/01/FH issued in January 2024. Under the OCS, comments are compiled in the following order: general comments are listed first, followed by comments on specific sections.

Explanatory notes on the appendix

2. The comments submitted through the OCS are hereby attached as **Annex I** and are presented in table format.

Annex I

GENERAL COMMENTS

Australia thanks the European Union, Chile and the International Dairy Federation for preparing paper CX/FH 24/54/7 presenting for comment revised Annexes II to IV for the Guidelines for the safe use and re-use of water in food production (CXG100-2023).	**Australia**
Ecuador agradece a la Presidencia del Grupo de Trabajo la oportunidad para poder aportar con su criterio técnico en la construcción de la referida norma alimentaria; en tal virtud, una vez revisado el proyecto de norma, nos permitimos indicar que estamos de acuerdo con el nuevo Anexo IV propuesto en el Anteproyecto de Directrices presentado en el Apéndice I: Anexos II a IV, respectivamente, sobre: “Pescado y productos pesqueros”, “Producción de leche y productos lácteos” y “Tecnologías de Recuperación y Tratamiento de Agua para su Reutilización” y consideramos apropiado mantenerlo; esto a razón de que las recomendaciones incluidas en el documento son muy útiles, ya que contienen una descripción general de las tecnologías relevantes para los diferentes Anexos y las recomendaciones para su aplicación segura.	**Ecuador**
As a response to the question a), Japan proposes to maintain the draft Annex IV texts as a Codex information document since the draft texts provide information/examples in detail on current technologies for water reuse. As response to the question b), Japan suggests that reopen of the discussion on adopted General Section and Annex 1 should be avoided. Japan recommends making a cross-reference to a Codex information document (i.e. the draft Annex IV texts) in Introduction of the General section. If the guidance on hygiene practices exist in the draft Annex IV texts, Japan proposes to put them back to the original, Annex 3, as they are recommendation on milk and milk products provided by JEMRA report (MRA40).	**Japan**
Kenya thanks the EWG Chair and fellow co-chair for this work well done. Kenya agrees with the proposed draft Annex IV on Technologies for the recovery and treatment of water for reuse and appropriate to maintain it. Annex IV gives provisions for options for technologies for the recovery and treatment of water for reuse. Kenya agrees the consideration for a restricted revision of the General Section is appropriate with the purpose of introducing a cross-reference to this new Annex IV. Kenya agrees to revise Annex I on Fresh Produce with the purpose of introducing a cross-reference to this new Annex IV and indicating which technologies are most relevant for Annex I. Kenya also proposes the advancement of this text in the Codex Step process with the inclusion of the comments as indicated in various sections.	**Kenya**
L'Annexe II relative aux produits de la pêche telle qu'elle est rédigée, en comparaison avec l'Annexe III sur les produits laitiers, traite notamment de l'aspect utilisation de l'eau tandis que l'aspect réutilisation de l'eau n'a pas été traité en détail. Cette annexe ne couvre pas les mêmes volets que l'annexe I et l'annexe III. Il faut enrichir la partie sur les techniques de recyclage de l'eau et l’évaluation de l’adaptation de l’eau à l’usage prévu après un recyclage ; Cette annexe ne couvre pas en détail comment déterminer si l'eau est « adaptée à son usage » pour les produits de la pêche et exactement après recyclage. Manquant une partie sur la comparaison avec l'Annexe III, les chapitres concernant « TECHNOLOGIES DE RÉCUPÉRATION ET DE TRAITEMENT DE L'EAU POUR LE RECYCLAGE » et « ÉVALUATION DE L'EAU APPROPRIÉE À L'USAGE PRÉVU POUR LE RECYCLAGE » et « GESTION DE LA SÉCURITÉ SANITAIRE DE L'EAU » ne sont pas couverts à l'Annexe II. Les arbres de décision traitent les généralités de la qualité microbiologique de l'eau utilisée dans le secteur des produits de la pêche et en aquaculture et n'ont pas à décider de la qualité de l'eau après recyclage pour juger si cette eau est adaptée à l'usage prévu. Il est proposé d'ajouter d’autres arbres de décision pour décider si l'eau est adaptée à l'usage prévu après recyclage.	**Morocco**

Un rapport JEMRA traitant de l'aspect recyclage de l'eau dans les produits de la pêche et de l'aquaculture est jugé nécessaire, à l'instar de celui qui a traité de cet aspect dans le secteur laitier : « Sécurité et qualité de l'utilisation et de la réutilisation de l'eau dans la production et la transformation des produits laitiers » Le document JEMAR publié pour les produits de la pêche est « Sécurité et qualité de l'eau utilisée dans la production et la transformation du poisson et des produits de la pêche ».	
CX/FH 24/54/7, al respecto: El Perú agradece al Comité del Codex sobre Higiene de los Alimentos (CCFH), por el esfuerzo emprendido a la fecha y solicita puedan precisarse los parámetros y criterios/límites mínimos o máximos que debe de reunir un “agua limpia”, que según definición sería un agua que no cumple los criterios de agua potable pero no pone en peligro la inocuidad. Dichos criterios o límites, deben de estar respaldados científicamente por el JEMRA, JECFA u otro grupo de expertos	**Peru**
The Philippines supports the proposed draft Guidelines as presented in Appendix I: Annexes II to IV, respectively on “Fish and Fishery Products”, “Production of Milk and Milk Products” and “Technologies for recovery and treatment of water for reuse” The Philippines agrees to maintain the Annex IV referring to Technologies for recovery and treatment of water for reuse noting that this annex is still for further review and development. Moreover, the Philippines support the first option on considering a restricted revision of the General Section with the purpose to introduce a cross-reference to this new Annex IV. Since Annex IV is applicable to all Annexes, it will be practical and more simplified if the Annex IV will be mentioned and cross-referenced from the General Section.	**Philippines**
Uruguay agradece la oportunidad de enviar comentarios.	**Uruguay**
The United States is generally pleased with the progress on this work from the previous session and the incorporation of comments into the draft annexes that are for consideration by CCFH54. The United States believes that with some additional refinement, the two remaining Annexes (Annex II on Fish and Fishery Products and Annex III on the Production of Milk and Milk Products) should be ready for the Committee to recommend for final adoption at Step 5/8 by CAC47 (2024). The United States also supports the inclusion of proposed Annex IV, which contains information of broad interest and application to water reuse.	**USA**

SPECIFIC COMMENTS

Background information (questions outlined in paragraph 17 of CX/FH 24/54/7)

i	Australia supports the progress of development for these Annexes and will provide suggested changes/edits to the text during the Physical Working Group meeting on 10 March 2024. There are sections in Annex II that require re-drafting in order for the guidance to be clearer.	**Australia**
i	El Perú agradece al Comité del Codex sobre Higiene de los Alimentos (CCFH), por el esfuerzo emprendido a la fecha y en relación al contenido de los Anexo II al IV no se tiene mayores observaciones técnicas	**Peru**
i	Uruguay realiza las sugerencias correspondientes punto por punto en los anexos.	**Uruguay**
i	The International Dairy Federation (IDF), with a history of representing the international dairy sector for 120 years on technical, scientific, analytical, nutritional, and labelling issues, respectfully is recommending the following additions and edits to the draft Annex III “Production of Milk and Milk Products” as well as Annex IV “Technologies for Recovery and Treatment of Water for Reuse”.	**IDF/FIL**
ii	Australia supports the proposed new Annex IV and consider it appropriate to maintain it. A restricted revision of the General Section is appropriate to introduce a cross-reference to this new Annex IV. We consider it appropriate to also complete a restricted revision of Annex I to include a cross-reference to this new Annex IV and to indicate which technologies are most relevant for Annex I. Annex IV is predominantly dairy focused and would benefit from examples relevant to other commodities. Australia will suggest some changes for consideration in Annex IV at the Physical Working Group meeting and it may be helpful if some examples for other commodities could be incorporated to the use of technologies for water reuse during the physical working group meeting.	**Australia**
ii. a)	Argentina agrees to maintain this annex	**Argentina**
ii. a)	Canada agrees with the proposed new Annex IV and considers it appropriate to maintain it but would like the scope and application defined and the annex to be less dairy specific. Generalized language would be more suited and it should be clearly stated that the references to dairy plants are examples.	**Canada**
ii. a)	Se considera que el anexo IV presenta aspectos teóricos concretos para guiar la decisión sobre las tecnologías de recuperación y tratamiento de agua que pueden usarse para la reutilización de agua, por tanto, parece apropiado mantenerlo. Sin embargo, hay algunos aspectos del MRA40 que se describen en los anexos II y III.	**Colombia**
ii. a)	We agree with the content of the Annex. However, we would like to suggest considering it as a new chapter in the General Section. This would better inform the reader (as all relevant general issues are in the same section). We would also like to provide some additional comments on the relevance for the other sectors and that this relevance should be clearer expressed.	**Norway**
ii. a)	El Perú agradece al Comité del Codex sobre Higiene de los Alimentos (CCFH) por el esfuerzo emprendido a la fecha y está de acuerdo con el nuevo Anexo IV propuesto y que se mantenga.	**Peru**
ii. a)	The UK suggests it is appropriate to maintain.	**United Kingdom**
ii. a)	Uruguay esta de acuerdo con el item a.	**Uruguay**
ii. a)	IDF supports the development of a new Annex IV for water use and reuse technologies applicable to various food sectors. IDF would ensure technologies specific to the dairy sector would be captured in Annex III.	**IDF/FIL**
ii. b)	Argentina agrees with consider a restricted revision of the General Section and the Annex I on Fresh produce appropriate with the purpose to introduce a cross-reference to this new Annex IV	**Argentina**
ii. b)	o Considera apropiada una revisión restringida de la Sección General con el fin de introducir una referencia cruzada a este nuevo Anexo IV;	**Colombia**

	o Si considera apropiada una revisión restringida del Anexo I sobre productos frescos con el fin de introducir una referencia cruzada a este nuevo Anexo IV e indicar qué tecnologías son más relevantes para el Anexo I. Es oportuno generar la referencia cruzada para dejar los aspectos generales teóricos dentro del anexo IV y las especificaciones por tipo de producto en los respectivos anexos I, II y III.	
ii. b)	El Perú agradece al Comité del Codex sobre Higiene de los Alimentos (CCFH) por el esfuerzo emprendido a la fecha y considera apropiado una revisión restringida de la Sección General con el propósito de introducir una referencia cruzada a este nuevo anexo IV, asimismo, considera apropiado una revisión restringida del anexo I sobre productos frescos con el fin de introducir una referencia cruzada a este nuevo Anexo IV	**Peru**
ii. b)	Uruguay esta de acuerdo con el item b	**Uruguay**
ii. b) bullet 1	Canada considers a restricted revision of the general section appropriate.	**Canada**
ii. b) bullet 1	If maintained as a separate Annex IV, it would be appropriate to include cross references between this Annex and the General Section to underline the general relevance of the guidance.	**Norway**
ii. b) bullet 1	The UK suggests a cross-referencing to the annexes is suitable but would suggest ensuring that when cross-referencing, the relevant technologies are highlighted clearly and obviously so as not to misinterpret.	**United Kingdom**
ii. b) bullet 1	Uruguay considera adecuado realizar una revisión limitada de la Sección general	**Uruguay**
ii. b) bullet 1	IDF supports the addition of a cross-reference to Annex IV in the General Guideline document adopted as final by CAC last year.	**IDF/FIL**
ii. b) bullet 2	Canada considers a restricted revision of Annex I appropriate to introduce a cross reference and indicate which technologies are more relevant for Annex I or provide examples for Fresh produce in Annex IV.	**Canada**
ii. b) bullet 2	The UK suggests, if Annex IV is maintained, then a restricted revision on Annex I would be appropriate.	**United Kingdom**
ii. b) bullet 2	Uruguay sugiere incluir tecnologías específicas adecuadas para los productos frescos (por ejemplo tecnologías de barreras).	**Uruguay**
NA	We consider more work is required for Annex II before it advances. Annex III and IV are close to being ready for advancement but will depend upon the outcomes of the Physical Working Group meeting.	**Australia**
NA	We support the advancement of Annex II and Annex III in the step process. Annex IV however needs some more drafting and a discussion on the placement.	**Norway**
NA	Regarding the CL 2024/01/OCS-FH - requesting for Comments, regarding the required input on whether agree with the proposed new Annex IV on Technologies for recovery and treatment of water for reuse for inclusion in the Guidelines for the Safe Use and Re-use of Water in Food Production CXG 100-2023: -United ARAB Emirates agrees with the proposed new Annex IV and consider it appropriate to maintain it, with the following suggestions: -United Arab Emirates proposes to modify the definition of Membrane Filtration to be: "The use of filtration system (e.g., ultra, micro, nano, and reverse osmosis "RO") using suitable materials (e.g., fiber and ceramic) to remove debris, non-dissolved solids and bacteria from milk, whey or other liquid dairy matrix".	**United Arab Emirates**

	- United Arab Emirates proposes to modify the definition of Retentate to be: The dairy concentrate product obtained by concentrating milk constituents using membrane filtration (UF /MF/ RO / Reverse Osmosis and Polishing water (ROP)/ NF) technology for milk or milk products.	
NA	Se realiza la revisión sobre el documento en español.	**Uruguay**
NA	In addition to the issues above, IDF recognizes the importance of the “water safety plan” as an important component of achieving the safe use and reuse of water and recommends that the definition from the WHO/JEMRA “Safety and Quality of Water Use and Reuse in the Production and Processing of Dairy Products” should be inserted into the recently adopted Codex, “Guidelines for the Safe Use and Reuse of Water in Food Production and Processing” as well as re-insert references onto the draft Dairy Annex as per the previous version. The other option would be to support the development of a new Annex V titled “Water Safety Plan”.	**IDF/FIL**

Annex II: Fish and Fishery Products

1. INTRODUCTION		
title	We find the new structure appropriate and consider the document improved.	**Norway**
Paragraph 2		
2	Water used in the production and processing of fish and fishery products can be obtained from many sources, namely: potable water from a public or private water supply system, fresh surface water, groundwater sources, harvested rainwater, seawater and brackish water, desalinated water, recycled water from production or processing step within an establishment or ~~reused~~ water fit for purpose originating from agricultural activities (e.g. hydroponics), etc. Suggest a modification. Use of 'reused water' contradicts the reused water definition in this context because the agricultural water is outside a fish operation and is entering into it. Reuse water in this context should only refer to that contained within the fish operation/processing system/within the same fish operation.	**Canada**
2	Water used in the production and processing of fish and fishery products can be obtained from many sources, namely: potable water from a public or private water supply system, fresh surface water, groundwater sources, ~~harvested~~ collected rainwater, seawater and brackish water, desalinated water, recycled water from production or processing step within an establishment or reused water originating from agricultural activities (e.g. hydroponics), etc. consistency with the ANNEX 1	**Japan**
2	Water used in the production and processing of fish and fishery products can be obtained from many sources, namely: potable water from a public or private water supply system, fresh surface water, groundwater sources, harvested rainwater, seawater and brackish water, desalinated water, recycled water from production or processing step within an establishment or reused water originating from agricultural ~~activities (e~~activities, e.g. ~~hydroponics), etc~~hydroponics. Editorial for clarity	**United Kingdom**
Paragraph 3		
3	NZ considers that this clause is unnecessary because it is already covered elsewhere.	**New Zealand**
Paragraph 4		
4	Fish and fishery products are generally regarded as safe, healthy, and nutritious foods. However, these products have been associated with infections and intoxications mediated by viruses (principally norovirus ~~Hepatitis~~ hepatitis A), bacteria (principally *Vibrio* spp. and *Salmonella* spp.), protozoans (principally *Giardia* ~~*lamblia*~~*lamblia and*~~. And~~ *Cryptosporidium parvum*), marine biotoxins and helminths (principally *Anisakis* spp.). The causes of such fishery products safety concerns are diverse, ranging from ~~naturally – occurring~~ naturally-occurring microorganisms and parasites to contamination of primary production environments and/or poor hygiene practices during processing and consumption. Depending on the pathogen, they can remain infectious in sources of water for a considerable period of time and affect the suitability of a site to produce or harvest fish and fishery products[1]. Should be a hyphenated phrase, not written as a dash. Editorial	**Canada**

4	India would like to submit that many more pathogens are associated with fish products and it is suggested to include name of such organisms. A document on "Microbiological aspects of fish and fishery products" available at https://krishi.icar.gov.in/jspui/bitstream/123456789/24993/1/25_Microbiological%20aspects%20of%20fish%27.pdf may be referred in this regard.	**India**
4	Fish and fishery products are generally regarded as safe, healthy, and nutritious foods. However, these products have been associated with infections and intoxications ~~mediated~~ caused by viruses (principally norovirus and Hepatitis A), bacteria (principally *Vibrio* spp. and *Salmonella* spp.), protozoans (principally *Giardia lamblia*. ~~And~~ and *Cryptosporidium parvum*), marine ~~biotoxins~~ biotoxins, histamine and helminths (principally *Anisakis* spp.). The causes of such ~~fishery products safety concerns~~ hazards are diverse, ranging from naturally – occurring microorganisms and parasites to contamination of primary production environments and/or poor hygiene practices during processing and consumption. Depending on the pathogen, they can remain infectious in sources of water for a considerable period of time and affect the suitability of a site to produce or harvest fish and fishery products[1]. Added as histamine is a common intoxicant in certain fishery products. Editorial It is considered that the word 'hazards' is more appropriate here. Proposed simplification of the text for clarity	**United Kingdom**
Paragraph 5		
5	Water has multiple applications in the fisheries and aquaculture sectors, and water quality could impact the safety of the final product. This annex provides guidance on ensuring quality of water used in aquaculture and in fish and fishery products processing ~~at~~ on vessels and throughout processing facilities. Editorial	**United Kingdom**
Paragraph 6		
6	There are multiple opportunities for reusing water in these sectors, especially in processing activities. To avoid ~~the use of~~ excessive ~~amounts~~ use of water in production and processing of fish and fishery products, there is ~~also~~ a need to implement more sustainable practices for the management and efficient use/reuse of water resources. The type of application for reused water will determine whether that water is fit-for-purpose and/or a specific treatment is required before it can be used. (JEMRA, 2021). Editorial for clarity	**United Kingdom**
Paragraph 7		
7	A Water fit for purpose assessment, which encompasses the use of ~~a~~ an appropriate level of comprehensive risk assessment and further risk management approach to the entire water supply from the catchment or source to its final use, may be an effective means to ensure fit for purpose water. Japan proposes to insert a phrase "an appropriate level of" in para 7 to indicate that the comprehensive risk assessment can be conducted at various levels from "least comprehensive" to "most comprehensive", according to para 18 of the General Section.	**Japan**

7	A Water fit for purpose assessment, which encompasses the use of a comprehensive risk assessment and further risk management approach to the entire water supply from the catchment or source to its final use, may be an effective means to ensure fit for purpose water. Test should read an "Assessment to assess that water if fit-for-purpose..." ...source to it's final use may be effective. " Reason: Addition of hyphens, it should be consistent throughout the text	**New Zealand**
2. PURPOSE AND SCOPE		
Paragraph 8		
8	The purpose and scope of this annex is to provide recommendations for the microbiologically safe sourcing, use and reuse of water in production and processing of fish and fishery products for human consumption by applying the principle of 'fit for purpose' and using a risk-based approach. This annex also provides examples and/or practical case studies for determining fit-for-purpose use and reuse of water. Japan proposes to add the following sentence since this draft Annex includes several example DTs and should be consistent with the adopted General Section and ANNEX 1.	**Japan**
8	NZ suggests a new clause 8 noting the reference in the overarching guidelines, that chemical contamination is covered elsewhere and so this annex cannot be read in isolation.	**New Zealand**
3. USE		
Paragraph 9		
9	This Annex is complimentary to and should be used in conjunction with the General section of these Guidelines and the following Codex Alimentarius standards: To be clear on which General section we are referring to.	**Canada**
4. DEFINITIONS		
Paragraph 10		
10	See the general part of these *Guidelines for the Safe Use and Reuse of Water in Food* ~~*Production*~~*Production and Processing*. Word missing.	**Canada**
10	Kenya proposes the replacement of 'See' with 'Refer' in para10 to align with other codex texts	**Kenya**
Paragraph 11		
11	Kenya proposes the replacement of 'See' with 'Refer' in para11 to align with other codex texts	**Kenya**
Evisceration (gutting)	~~**Evisceration (gutting)**~~**Evisceration:** The removal of ~~gills, viscera,~~ viscera and other internal organs. We suggest deleting "gutting" and "gills". Rationale: During the process og evisceration or gutting, the gills are not usually removed, unless the fish is beheaded at the same time. A definition including removal of gill will therefore not be precise in every situation. If one wants to underline that gills also should be removed, the term "gutting and gilling" would be appropriate. Rationale: In our opinion and experience, limiting water in contact with fishery products to potable water, is too restrictive. Food safety is ensured by using water fit for	**Norway**

	purpose. In Paragraph 16 water used in contact with fishery products on board is to be fit for purpose. The requirement for water used in a processing plant should be in line with the required quality of water used for the same purpose on board a vessel.	
Fishery products	**Fishery products**: Any species of fish, including crustaceans, ~~molluscs (including live bivalve molluscs)~~molluscs, marine gastropods, echinoderm, tunicates, or part of them intended for human consumption. The precision of including live bivalve molluscs is not required in the definition.	**Canada**
Fishery products	**Fishery products**: Any species of fish, including crustaceans, molluscs (including live bivalve molluscs), marine gastropods, echinoderm, tunicates, or part of them intended for human consumption. Marine gastropods are part of molluscs. Consider if we should delete it for a simpler definition.	**Canada**
Processing facilities	**Processing ~~facilities~~establishment**: ~~A facility~~ An establishment where harvested fish and fishery products are processed, graded, and packed for further transportation and consumption. should be "establishment" throughout the document, as in para 2. (Facility and plant are used, and the wording should be consistent).	**Japan**
5. AQUACULTURE PRODUCTION SITES (REARING), HARVESTING AND (ON-BOARD) PRESERVATION		
Paragraph 12		
12	In aquaculture systems, the source of water varies according to the species, geographical location, and water availability. Seawater is used in marine aquaculture while inland aquaculture uses mainly surface and groundwater sources. Food Business Operator (FBO) should use fit-for-purpose water at aquaculture production and consider the following aspects of each water source:* The microbiological quality of the surface and groundwater is affected by multiple and complex interacting natural and anima/human activities, and pathogen concentrations are affected by population density, rainfall and water temperatures. * Depending on the geographical region, seasonality, proximity to marine dumping, industrial or sewage outflow (e.g. wastewater, storm water, sewer overflow), agricultural run-off and temperature, seawater can hold indigenous potentially pathogenic bacteria, such as *Vibrio* spp., that may require monitoring and control. Since there is no consideration for “surface and groundwater sources”, Japan proposes to add a new bullet (taken from JEMRA MRA 37 report, p27-29) with a new leading sentence indicating the use of fit-for-purpose water at aquaculture production.	**Japan**
12	In aquaculture systems, the source of water varies according to the species, geographical location, and water availability. Seawater is used in marine aquaculture while inland aquaculture uses mainly surface and groundwater sources. Depending on the geographical region, seasonality, proximity to marine dumping, industrial or sewage outflow (e.g. wastewater, storm water, sewer overflow), agricultural run-off and temperature, ~~seawater can hold indigenous potentially~~ there may be an increase in abundance of naturally occurring pathogenic ~~bacteria~~bacteria e.g. Vibrio Spp. or the introduction of pathogenic microorganisms e.g. viruses from sewage overflow, ~~such as *Vibrio* spp.,~~ that may require monitoring and control. Suggested edit to the drafting to improve clarity.	**United Kingdom**
Paragraph 13		
13	Food Business ~~Operator (FBO)~~ Operators (FBOs) should consider the following in assessing and managing water which is intended for use at rearing or harvesting:	**Canada**
13	~~Food Business Operator (FBO) should consider the following in assessing and managing water which is intended for use at rearing or harvesting:~~	**Japan**

	Japan proposes to move the texts of para 13 to para 29 of Section 9 (WATER FIT-FOR-PURPOSE ASSESSMENT) since those should be applied for processing (post-harvest) as well as aquaculture production.	
13.1[1]	The use and reuse of water should be subject to a risk-based approach covering the whole water system from the source or catchment area, treatment and storage, distribution and up to the point of use (from “source to tap”). In this context, sanitary surveys/profiling and a water fit for purpose assessment may be important to determine if water is fit-for purpose and the likelihood of contamination in the production and processing systems. Fit for purpose is written in two different ways in the document (fit for purpose or fit-for purpose). It should be uniform.	**Canada**
13.1	~~The use and reuse of water should be subject to a risk-based approach covering the whole water system from the source or catchment area, treatment and storage, distribution and up to the point of use (from “source to tap”). In this context, sanitary surveys/profiling and a water fit for purpose assessment may be important to determine if water is fit-for purpose and the likelihood of contamination in the production and processing systems.~~ Japan proposes to move the texts of para 13 to para 29 of Section 9 (WATER FIT-FOR-PURPOSE ASSESSMENT) since those should be applied for processing (post-harvest) as well as aquaculture production.	**Japan**
13.2	Characterization of surface or groundwater quality in abstraction points should be extended upstream, when possible, to include the whole water catchment area. Consider the use of plain language here. Does abstraction point mean, "the point of withdrawing the water" or "extraction points" or "as water sources"? Unless "abstraction point" is well-known or defined somewhere (then it should be referenced), its intent in this context is not known, and the point being made in this context is not clear. This phrase needs to be better articulated.	**Canada**
13.2	~~Characterization of surface or groundwater quality in abstraction points should be extended upstream, when possible, to include the whole water catchment area.~~ Japan proposes to move the texts of para 13 to para 29 of Section 9 (WATER FIT-FOR-PURPOSE ASSESSMENT) since those should be applied for processing (post-harvest) as well as aquaculture production.	**Japan**
13.3	A water~~Elaboration and implementation of~~ fit-for-purpose assessment considering the specific waterborne hazards (e.g. marine microbiological contaminants) that may impact the safety and quality of the fishery product(s). In case of catchment of fish, seasonal and climatic factors affecting source water quality in the immediate area should be included. Propose to remove the wording for simplicity, as it is already a listed consideration for FBOs in the beginning of para 13.	**Canada**
13.3	~~Elaboration and implementation of fit-for-purpose assessment considering the specific waterborne hazards (e.g. marine microbiological contaminants) that may impact the safety and quality of the fishery product(s). In case of catchment of fish, seasonal and climatic factors affecting source water quality in the immediate area should be included.~~	**Japan**

[1] Comments corresponding to each bullet point within their respective paragraphs have been numbered to aid comprehension.

	Japan proposes to move the texts of para 13 to para 29 of Section 9 (WATER FIT-FOR-PURPOSE ASSESSMENT) since those should be applied for processing (post-harvest) as well as aquaculture production.	
13.3	Elaboration and implementation of fit-for-purpose assessment considering the specific waterborne hazards (e.g. marine microbiological contaminants) that may impact the safety and quality of the fishery product(s). In case of catchment of fish, seasonal and climatic factors affecting source water quality in the immediate area should be included. Seasonal and climatic factors affecting source water quality in the immediate area should be included. It is unclear whether this clause is referring to the harvest of fish or the catchment area where water is taken from. The term “catchment” is used elsewhere to refer to the area from which the water is sourced.	**New Zealand**
13.3	Elaboration and implementation of fit-for-purpose assessment considering the specific waterborne hazards (e.g. marine microbiological contaminants) that may impact the safety and quality of the fishery product(s). ~~In case~~ Depending on the fishing ground of ~~catchment of fish~~origin, seasonal and climatic factors affecting source water quality in the immediate area should be included. We were unclear on the drafting of this sentence. We believe that the intention is that factors impacting on water quality in the fishing ground need to be considered and have proposed alternative drafting.	**United Kingdom**
Paragraph 14		
14	Many different types and sizes of fishing vessels are used throughout the world for harvesting based on the environment and the types of fish and fishery products caught or harvested. Water use in the vessels may vary from onboard preservation purposes to evisceration and further processing of the fish and fishery products. Onboard preservation can be done by chilling or freezing the fish and fishery products. The most common means of chilling is using ice. Other means are chilled water, ice slurries (of both seawater and freshwater), and refrigerated seawater, including brine freezers. When considering sources of water, including for the manufacture of ice, chilling, or cleaning in onboard fishing vessels, brackish water or seawater will be the natural choice for the water source. Japan proposes to add definition of "brackish water" in the definition section.	**Japan**
14	Many different types and sizes of fishing vessels are used throughout the world for harvesting based on the environment and the types of fish and fishery products caught or harvested. Water use ~~in the~~ on vessels may vary from onboard preservation purposes to evisceration and further processing of the fish and fishery products. Onboard preservation can be done by chilling or freezing the fish and fishery products. The most common means of chilling is using ice. Other means are chilled water, ice slurries (of both seawater and freshwater), and refrigerated seawater, including brine freezers. When considering sources of water, including for the manufacture of ice, chilling, or cleaning in onboard fishing vessels, brackish water or seawater will be the natural choice for the water source.	**United Kingdom**
Paragraph 15		
15	If seawater is used on fishing vessels, it ~~must~~ should only be taken from offshore areas , where possible, that are some distance away from pollution sources (i.e. sewage outflow) to ensure that the water is of suitable quality~~. There~~ . Cross-contamination should be ~~no cross-contamination~~ avoided between the point at which seawater is taken from offshore sources and wastewater streams and engine coolant outlets on a fishing vessel. In the Codex documents, generally "should" is used instead of "must".	**Japan**

	Japan suggests the following changes in para 15 to ensure flexibility and risk-based concept of this document since the water quality of both offshore and coastal area depends on the geographical region, seasonality, industrial or sewage outflow etc. (refer to para 12).	
15	If seawater is used on fishing vessels, it must only be taken from offshore areas that are some distance away from pollution sources to ensure that the water is of suitable quality. There should be no cross-contamination between the point at which seawater is taken from offshore sources and wastewater streams and engine coolant outlets on a fishing vessel. From areas free from known pollution sources Reason: Unless a specific distance can be provided, it would be better to remove any mention of distance	**New Zealand**
Paragraph 16		
16	It is essential that the seawater used is ~~free from~~ fit for purpose by addressing microbiological hazards that could pose risks to human health and the following recommendations should be considered: Japan proposes to change para 16 as follows to clarify the concept of "fit-for-purpose" and keep it consistent with para 10 of the adopted General section.	**Japan**
16.1	When seawater or refrigerated seawater is used for on board product preservation, the potential hazards (e.g. faecal pollution or contamination with endogenous marine flora) conveyed via the water should be considered in ~~the further~~ subsequent processing steps. Suggest a different word to improve readability.	**Canada**
16.1	When seawater or refrigerated seawater is used for on board product preservation, the potential hazards (e.g. faecal pollution or contamination with endogenous marine flora) conveyed via the water should be considered in the further processing steps. NZ believes that the ideal is to treat water prior to use,. However if that is not possible the effect of other processing steps under the control of the operator should be considered.	**New Zealand**
16.2	S~~seawater~~ eawater known to have with high salinity and free from particulate material will increase seawater quality prior to treatment, since the level of ~~presence of~~ naturally occurring marine microorganism are associated with temperature and salinity as well as sediments. The message in this paragraph is not clear and should be reworded for better understanding.	**Canada**
16.2	seawater known to have with high salinity and free from particulate material will increase seawater quality ~~prior to treatment~~, since the level of presence of naturally occurring marine microorganism are associated with temperature and salinity as well as sediments.	**Japan**
16.2	Kenya seeks clarification on this bullet.	**Kenya**
16.2	....since the levels of naturally occurring marine microorganism, such as V. parahaemolyticus are associated with temperature and salinity, seawaters knowns to have a high salinity will be safe to use Reason: Issue with being able to interpret what this means. If this means that if the water is clearer and the salinity is higher, this would be a lesser concern about hazards. Is this always the case with evidence to support. There are also no parameters for salinity so could be misleading.	**New Zealand**
16.2	seawater known to have ~~with~~ high salinity and free from particulate material will increase seawater quality prior to treatment, since the level of presence of naturally occurring marine microorganism are associated with temperature and salinity as well as sediments.	**United Kingdom**

16.3	Water use in direct contact with fishery products during processing and preservation activities (such as washing whole fish and rinsing the fish cavity after beheading, evisceration, skinning, and trimming) should be fit for purpose ~~and don´t add contamination~~ to prevent contamination of the fish or fishery product. Suggest a modification to improve the readability.	**Canada**
16.3	Kenya proposes the replacement of “don't add” with “not allow” for clarity in the last part of the bullet.	**Kenya**
16.3	Water use in direct contact with fishery products during processing and preservation activities (such as washing whole fish and rinsing the fish cavity after beheading, evisceration, skinning, and trimming) should be fit for purpose and don´t add contamination to the fish or fishery product. Proposed amendment: And should not further contaminate Reason: Correct words	**New Zealand**
16.3	Water use in direct contact with fishery products during processing and preservation activities (such as washing whole fish and rinsing the fish cavity after beheading, evisceration, skinning, and trimming) should be fit for purpose and don´t add contamination to the fish or fishery product. Proposed amendment: Water used Reason: Correct word	**New Zealand**
16.3	Water use in direct contact fishery products and food contact surfaces during processing and preservation activities (such as washing whole fish and rinsing the fish cavity after beheading, evisceration, skinning, and trimming) should be fit for purpose and don´t add contamination to the fish or fishery product.	**Saudi Arabia**
16.3	Water use in direct contact with fishery products during processing and preservation activities (such as washing whole fish and rinsing the fish cavity after beheading, evisceration, skinning, and trimming) should be fit for purpose and ~~don´t add contamination to the fish or fishery product~~not introduce contamination.	**United Kingdom**
6. FISHERY PRODUCTS PROCESSING PLANT		
title	**6. FISHERY PRODUCTS PROCESSING ~~PLANT~~ESTABLISHMENT** should be checked throughout the document	**Japan**
Paragraph 17		
17	Water is used in fishery products facilities for a variety of applications, including, washing fishery products, cleaning process areas, cooling, and other processing purposes such as brining, cooking and glazing. The characteristics of the process activity (e.g. direct contact with food) and the intended use of the fishery product (e.g. raw consumption or not) should be considered for the quality of water used. Water used as ingredient or water that comes into direct contact with fishery products or food contact surfaces should be of potable quality. Consider changing potable water to water that is fit for purpose. Rationale:	**Canada**

	No issue with potable water as a direct food ingredient such as encasing fish in ice. However, mandating use of potable water alone to the rest (in direct contact with food, or on food contact surfaces) is very restrictive and can depend as it contradicts the intents/science of water fit for purpose (including reuse water) in any one processing operation. It also contradicts other sections of this annex (e.g., paragraph 21) If the intent is to only use potable water than it should be clarified why only potable water must be used on food contact surfaces or in direct contact of the fishery product to not contradict other paragraphs in this annex. In Canada for example, reuse water must not present a risk of contamination of the food, and it is allowable in poultry operations with direct contact to the product (such as main carcass chiller operations) and red meat (carcass washing) operations.	
17	Water is used in fishery products facilities for a variety of applications, including, washing fishery products, cleaning process areas, cooling, and other processing purposes such as brining, cooking and glazing. The characteristics of the process activity (e.g. direct contact with food) and the intended use of the fishery product (e.g. raw consumption or not) should be considered for the quality of water used. Water used as an ingredient or water that comes into direct contact with fishery products or food contact surfaces should be of potable quality.	**Canada**
17	Water is used in fishery products facilities for a variety of applications, including, washing fishery products, cleaning process areas, cooling, and other processing purposes such as brining, cooking and glazing. The characteristics of the process activity (e.g. direct contact with food) and the intended use of the fishery product (e.g. raw consumption or not) should be considered for the quality of water used. Water used as ingredient ~~or water that comes into direct contact with fishery products or food contact surfaces~~ should be of potable quality. It contradicts the idea of fit for purpose assessment. MRA41 p5 In applying the concept of fit-for-purpose, it can be concluded that not all water that comes into contact with food products needs to be of potable quality.	**Japan**
17	Water is used in fishery products facilities for a variety of applications, including, washing fishery products, cleaning process areas, cooling, and other processing purposes such as brining, cooking and glazing. The characteristics of the process activity (e.g. direct contact with food) and the intended use of the fishery product (e.g. raw consumption or not) should be considered for the quality of water used. Water ~~used as ingredient or water~~ that comes into direct contact with fishery products or food contact surfaces should be fit for purpose. Water used as ingredient should be of potable quality.	**Norway**
17	El agua se utiliza en las instalaciones de elaboración de productos pesqueros para diversas aplicaciones, como el lavado de los productos pesqueros, la limpieza de las zonas de elaboración, la refrigeración y otros fines relacionados con la elaboración como el salmuerado, la cocción y el glaseado. Para la calidad del agua utilizada se deberían tener en cuenta las características de la actividad de elaboración (por ejemplo, contacto directo con los alimentos) y el uso previsto del producto pesquero (por ejemplo, consumo crudo o no). El agua que se utiliza como ingrediente o el agua que entra en contacto directo con los productos pesqueros o las superficies en contacto con los alimentos debería ser de calidad potable. Respecto a la ultima frase "El agua que se utiliza como ingrediente o el agua que entra en contacto directo con los productos pesqueros o las superficies en contacto con los alimentos debería ser de calidad potable." Uruguay considera adecuado resaltar en un punto independiente este concepto.	**Uruguay**

Paragraph 18		
18	El uso de agua no potable está permitido durante la manipulación y la elaboración, siempre y cuando no comprometa la inocuidad del producto o productos o cuando las etapas de elaboración posteriores puedan eliminar el peligro microbiológico que plantea el agua no potable. Se proponer especificar peligro microbiológico	**Colombia**
18	The use of non-potable water is allowed during handling and processing, as long as its use does not add contamination, compromise the safety of the product(s) or further processing stages can eliminate the hazard posed by the non-potable water. Japan proposes to add "add contamination" to be consistent with the last bullet point of para 16,	**Japan**
18	Kenya seeks clarification for the use of term non-potable water in codex text as used in this para.	**Kenya**
18	Proposed amendments: The use of water of a lesser standard than potable water (but still suitable) standard may be allowed during handling and processing, as long as its use does not compromise the safety of the product(s) or further processing stages can eliminate the hazard posed by the non-potable water. Reason: The water should be fit for the purpose for which it is being used. Using the term non-potable sounds like a blanket term which in many cases may not be appropriate. We do not allow the use of “non-potable water” during handling and processing but rather that it is of a standard that is sufficient to the purpose for which it is being used. Needs to be consistent with pre-amble and overarching guidelines.	**New Zealand**
18	The use of other types of water, other than non-potable ~~water~~ water, is allowed during handling and processing, as long as its use does not compromise the safety of the product(s). ~~or further processing stages can eliminate the hazard posed by the non-potable water.~~ The suggested statement is aligned with the statement in the general section of the guidelines, paragraph 3.	**Philippines**
18	The use of ~~non-potable~~ clean water is allowed during handling and processing, as long as its use does not compromise the safety of the product(s) or further processing stages can eliminate the hazard posed by the non-potable water. UK suggests using 'clean water' as defined in the general section of the document ("Water that does not meet the criteria for potable water but does not compromise the safety of the food in the context of its use.") Use of clean water during processing is outlined in CXC 52-2003.	**United Kingdom**
Paragraph 20		
20	In the fishery products ~~production and processing industry~~processing, some common examples of where water is used are: since this is processing section	**Japan**
20.1	washing whole fish and rinsing the fish cavity after beheading, evisceration, skinning, and trimming for purification, depuration, conditioning[2] or reimmersion, in the case of live bivalve molluscs. added new bulletpoint (second bulletpoint of para 16 also applies to processing)	**Japan**
20.9	for ~~not~~ non food contact purposes.	**Canada**
20.9	for ~~not~~ non- food contact purposes.	**Philippines**

	Change not food contact purposes to non-food contact surfaces for consistency	
20.9	for ~~not~~ non food contact purposes.	**United Kingdom**
Paragraph 21		
21	If potable water is not available, or its use is not possible in the production and processing environment, a thorough identification of the risks linked to the water source is required and minimum quality requirements and criteria should be established ~~based on~~ using a risk-based approach. Suggest a different word to improve readability.	**Canada**
21	If potable water is not available, or its use is not possible in the production and processing environment, a thorough identification of the risks linked to the water source is required and minimum quality requirements and criteria should be established based on risk-based approach. This para contradicts MRA 41 and needs to be considered whether "production" should be mentioned (this para is in the processing section).JEMRA,MRA41, p95 A supply of drinking (potable) water should exist in any fish and fishery product's processing industrial site, comprising proper facilities for storage and distribution to ensure the safety and quality of fishery products.	**Japan**
21	If potable water is not available, or its use is not possible in the production and processing environment, a thorough identification of the risks linked to the water source is required and minimum quality requirements and criteria should be established ~~based on~~ using a risk-based approach~~.~~.	**Norway**
21	If potable water is not available, or its use is not possible in the production and processing environment, a thorough identification of the risks linked to the water source is required and minimum quality requirements and criteria should be established ~~based on~~ using a risk-based approach.	**United Kingdom**
Paragraph 22		
22	In any production or processing facility, care must be taken to avoid contamination of the potable water system with non-potable water from other sources. Non-potable water systems should be identified (for example, with labels or colour codes) and should not connect with or allow reflux into potable water systems. Contamination may occur due to cross connections, backflows or back siphonage in the water plumbing systems ~~and can result from~~ because of improper installations, or additions/modifications to the existing plumbing. Before any processing or transformation stage at a fish and fishery products facility, water coming into direct or indirect contact with material or product must be sourced and, where necessary, tested and treated so that it complies with appropriate standards. Suggest a different word to improve readability.	**Canada**
22	NZ suggests splitting this into two separate clauses after "before any processing".	**New Zealand**
Paragraph 24		
24	Coastal sources, used for abstraction of seawater in land-based processing plants, cannot be guaranteed to be free from pathogens from the marine biota or from faecal contamination, and cannot be classified as fit-for-purpose sources without the appropriate monitoring and control measures. Seawater from offshore sources (geographically away from inland or inland pollution) is generally considered safe.	**Canada**

	However, depending on the geographical region and temperature, seawater can hold indigenous potentially pathogenic bacteria, such as *Vibrio* spp., that may require control. Consider the use of plain language here. Does abstraction point mean, "the point of withdrawing the water" or "extraction points" or "as water sources"? Unless "abstraction point" is well-known or defined somewhere (then it should be referenced), its intent in this context is not known, and the point being made in this context is not clear. This phrase needs to be better articulated.	
24	Coastal sources, used for abstraction of seawater in land-based processing plants, cannot be guaranteed to be free from pathogens from the marine biota or from faecal contamination, and cannot be classified as fit-for-purpose sources~~-~~ for processing without the appropriate monitoring and control measures. Seawater from offshore sources (geographically away from inland or inland pollution) is generally considered safe. ~~However, depending on the geographical region and temperature, seawater can hold indigenous potentially pathogenic bacteria, such as *Vibrio* spp., that may require control.~~ to clarify the purpose of "fit for purpose" Last sentence is already mentioned in para 12.	**Japan**
24	Coastal sources, used for abstraction of seawater in land-based processing plants, cannot be guaranteed to be free from pathogens from the marine biota or from faecal contamination, and cannot be classified as fit-for-purpose sources without the appropriate monitoring and control measures. Seawater from offshore sources (geographically away from inland or inland pollution) is generally considered safe. However, depending on the geographical region and temperature, seawater can hold indigenous potentially pathogenic bacteria, such as *Vibrio* spp., that may require control. This clause is repetitive and could be redrafted. We further suggest that clauses 23 and 24 could be moved between 17 & 18.	**New Zealand**
24	Coastal sources, used for abstraction of seawater in land-based processing plants, cannot be guaranteed to be free from pathogens from the marine biota or from faecal contamination, and cannot be classified as fit-for-purpose sources without the appropriate monitoring and control measures. Seawater from offshore sources (geographically away from inland or inland pollution) is generally considered safe~~.~~ ~~However~~, but depending on the geographical region and temperature, seawater can hold ~~indigenous~~ naturally-occurring potentially pathogenic bacteria, such as *Vibrio* spp., that may require control. The last sentence of this paragraph appears to contradict the second sentence, therefore suggested amendment made for clarity.	**United Kingdom**
7. GENERAL RECOMMENDATIONS		
title	May be deleted since para 25 is redundant with para 48. If decide to leave this section, one of the recommendations from MRA 41 p96 should be added: “Possible contamination risks from the immediate area of the catchment and seasonal and climatic factors should be assessed through regular water quality testing “	**Japan**
title	**7. GENERAL ~~RECOMMENDATIONS~~RECOMMENDATION** Deletion of S if only one paragraph or recommendation will be cited in this Section.	**Philippines**
Paragraph 25		
25	"....The effectiveness of any water treatment, should be validated"	**New Zealand**

	Reason: Also any aspect of the retic system, including holding tanks and any treatments need to be effective and not introduce contaminants.	
8. WATER INTENDED FOR REUSE		
Paragraph 26		
26	Treated wastewater generated from fish processing or water originating from agricultural activities (e.g. hydroponics) may be reused, as long as the microbiological quality of the ~~wastewater~~ treated water is ~~safe~~ fit for purpose and thoroughly controlled. To clarify what wastewater we are talking about	**Japan**
26	Treated wastewater or water originating from agricultural activities (e.g. hydroponics) may be reused, as long as the microbiological quality of the wastewater is safe and thoroughly controlled. Proposed amendment: The microbiological quality of the wastewater is maintained	**New Zealand**
Paragraph 27		
27	Water reuse can be made more efficient by targeting the water quality requirements to specific processes. Matching water quality requirements with the type of water use requires an analysis of the critical control points (CCPs) and an evaluation of the potential for contamination of the food products. Reuse of water in the processing facility should be integrated into existing HACCP programs alongside the development of frameworks for water reuse in food/production and processing. Proposed amendments: Matching water quality requirements with the type of water use requires an analysis of the water and its intended use and an evaluation of the potential for contamination of the food products. Reason: Analysis is not limited to CCPs. There appears to be an unusual use of “CCP” in this Annex. Has it been used to indicate that the fish processing would need a CCP to address hazards in the water?	**New Zealand**
Paragraph 28		
28	There are also multiple ways of reusing water in aquaculture, for example, integrated multi-trophic aquaculture systems, where multiple aquatic species from different trophic levels are farmed in an integrated fashion (e.g. finfish and seaweed) ~~with benefits such as improved efficiency and reduced waste~~. Another example is the aquaponic system[3], which integrates recirculating aquaculture and hydroponics into a single production system ~~as is shown in Figure 4~~. These ways of reusing water should be considered for implementation of water fit-for-purpose assessment. The environmental impact is outside of the scope of this document, so we suggest to delete the relevant phrase. Also, we propose to insert a new sentence in the last of para28 to indicate that a fit-for-purpose assessment is necessary for these ways of water reuse	**Japan**
Figure 4: Schematic of a simple aquaponic unit		
Figure 4	**Figura 4: Esquema de una unidad acuapónica simple**[4] Uruguay propone adecuar la numeración de las figuras y revisar la no repetición de la numeración.	**Uruguay**
Figure 4	~~**Figure 4: Schematic of a simple aquaponic unit**~~[4]	**Japan**
9. WATER USE OR REUSE FIT FOR PURPOSE ASSESSMENT		

Paragraph 29		
29	Any water use and reuse scenario considered for implementation, should consider the following in assessing and managing microorganisms in water: align with the title	**Japan**
29	Any water reuse scenario considered for implementation, should consider the following in assessing and managing microorganisms in water: Proposed amendment: Any scenario aiming to implement water use or reuse in fish and fishery product processing should consider... Reason: Rewording	**New Zealand**
29.1	ensuring the safety of water using a risk-based approach covering the whole water system from the source to the point of ~~use~~use ,the end use of the food product (e.g. whether the food is eaten raw), and management options such as treatment options and their efficacy and the application of multiple barrier processes for risk mitigation; Japan proposes to add the following sentence because of consistency with para 6 of the adopted General section. (Fit for purpose assessment is done not only in terms of the water itself) 【General section】 6. Deciding whether water is fit for purpose should be based on a hazard analysis that considers risk factors such as those associated with the source water, the end use of the food product (e.g. whether the food is eaten raw – without steps that would mitigate potential hazards introduced by the water source), and management options such as treatment options and their efficacy and the application of multiple barrier processes for risk mitigation.	**Japan**
29.2	A water~~elaboration and implementation of~~ fit for purpose assessment and management procedures and implement efficient monitoring plans; and Propose to remove the wording for simplicity, as it is already a listed consideration in the beginning of para 29.	**Canada**
29.2	· In this context, sanitary surveys/profiling and a water fit for purpose assessment may be important to determine if water is fit-for purpose and the likelihood of contamination in the production and processing systems. · Characterization of surface or groundwater quality in abstraction points should be extended upstream, when possible, to include the whole water catchment area.· In case of catchment of fish, seasonal and climatic factors affecting source water quality in the immediate area should be included.elaboration and implementation of fit for purpose assessment and management procedures and implement efficient monitoring plans; and Japan proposes to insert the following bullets taken from para 13 (please refer to our comment on para 13)	**Japan**

29.2	elaboration and implementation of fit for purpose assessment and management procedures and implement efficient monitoring ~~plans;~~ ~~and~~plans such as microbiological testing and other applicable test parameters; The Philippines suggests the addition of examples of monitoring plans in the statement that may be related to managing microorganisms in water. Rationale: Addition of the statement “such as microbiological testing and other applicable test parameters” to the text will give emphasis on possible examples of monitoring plans that may be used in managing microorganisms in water.	**Philippines**
29.3	ensuring fit for purpose assessment considers the specific waterborne microbiological hazards (e.g. marine microbial contaminants) that may impact the safety and quality of the fish and fishery product(s). to be along with the scope	**Japan**
Paragraph 30		
30	Some of the most relevant ~~biohazards~~ microbiological hazards and their relative risk which may be considered under a water fit for purpose assessment are listed in Table 1. In evaluating risk of microbiological hazards in water, their risk should be based on local circumstances (e.g. based on epidemiological data), particularly where the water is used. Japan proposes to add a sentence taken from the note of Table 1 with some amendments, to clarify the concept of Table 1 for the users of this draft document.	**Japan**
9.1 Examples of Decision Trees (DTs) to identify possible critical control points (CCPs) with regards to water quality for fish and fishery products, potentially eaten raw or undercooked.		
title	30 bis. operation-specific assessment 9.1 Examples of Decision Trees (DTs) to identify possible critical control points (CCPs) with regards to water quality for fish and fishery products, potentially eaten raw or undercooked. (Based on Microbiological Risk Assessment Series 33. Safety and Quality of Water Used in Food Production and Processing Meeting Report. https://www.fao.org/publications/card/en/c/CA6062EN/) Suggest to add a paragraph regarding operation specific assessment, since this is mentioned in para 51	**Japan**
title	The UK is unclear on the drafting of paragraphs 31-41, with regards to reference to CCPs, and would welcome discussion on these paragraphs during physical working group.	**United Kingdom**
Paragraph 31		
31	Recommendations on best hygiene practice related to the use and reuse of water in the Code of Practice for Fish and Fishery Products (CXC 52-2003) are considered sufficient to control the microbiological risk from such water in case fish is eaten cooked. DTs may help to estimate the need for the consideration of possible CCPs related to the use and reuse of water when the fish and fishery products are potentially eaten raw or undercooked. The message in this sentence is not clear. The sentence should be improved for clarity.	**Canada**
31	Recommendations on best hygiene practice related to the use and reuse of water in the Code of Practice for Fish and Fishery Products (CXC 52-2003) are considered sufficient to control the microbiological risk from such water ~~in case~~ when fish is eaten cooked. DTs may	**Canada**

	help to estimate the need for the consideration of possible CCPs related to the use and reuse of water when the fish and fishery products are potentially eaten raw or undercooked. Suggest a different word to improve readability.	
31	DTs can be used~~Recommendations on best hygiene practice related to the use and reuse of water~~ in conjunction with the Code of Practice for Fish and Fishery Products (CXC ~~52-2003) are considered sufficient to control the microbiological risk from such water in case fish is eaten cooked. DTs~~ 52-2003) and may help to estimate the need for the consideration of possible CCPs related to the use and reuse of water when the fish and fishery products are potentially eaten raw or undercooked. Japan proposes to change para 30 since CXC52-2003 covers recommendations for fishery products eaten in raw as well as those undercooked.	**Japan**
31	Recommendations on ~~best hygiene~~ good hygienic practice related to the use and reuse of water in the Code of Practice for Fish and Fishery Products (CXC 52-2003) are considered sufficient to control the microbiological risk from such water ~~in case~~ where fish is eaten cooked. DTs may help ~~to estimate~~ determine the need for the consideration of possible ~~CCPs~~ significant hazard related to the use and reuse of water when the fish and fishery products are potentially eaten raw or undercooked.	**United Kingdom**
Paragraph 32		
32	The possible CCPs should aim at controlling (e.g. freezing as control measures for parasites) ~~of~~ the pathogens most significant for the fish production. These pathogens should be identified by a case-by-case assessment (e.g. based on epidemiological data). In case of marine or estuarine fish, *Vibrio parahaemolyticus* (Vp) is often of most concern but this highly depends on the origin/area where the seawater is collected. In case of freshwater aquaculture, faecal (enteric) pathogens mostly represent the primary public health risk[6].	**Canada**
32	The possible CCPs should aim at controlling (e.g. freezing as control measures for parasites) of the pathogens most significant for the fish production. These pathogens should be identified by a case-by-case assessment (e.g. based on epidemiological data). In case of marine or estuarine fish, *Vibrio parahaemolyticus* (Vp) is often of most concern but this highly depends on the origin/area where the seawater is collected. In case of freshwater aquaculture, faecal (enteric) pathogens mostly represent the primary public health risk[6]. Proposed amendments: The possible CCPs for reducing hazards in the water should aim at controlling (e.g. filtration?) of the pathogens most significant for the fish production. These pathogens should be identified by a case-by-case assessment taking into account the source of the water and any previous use. Reason: Is this referring to a CCP for reducing hazards in the process water or the fishery product? It is assumed this is referring to the water. NZ suggests the deletion of the entire bracket referring to the epidemiological data.	**New Zealand**
Example of DT to magnitude the risk of faecal pathogens in freshwater aquaculture (Adapted from Figure 4 of MRA33)		
title	Example of DT to determine the magnitude of the risk of faecal pathogens in freshwater aquaculture (Adapted from Figure 4 of MRA33) Suggestion added to clarify the meaning of “to magnitude” in this context.	**Canada**
Paragraph 33		
33	In case of production of fish in freshwater aquaculture, the DT in Figure 1 can be used to determine the magnitude of hazardous events (e.g. unacceptable presence of faecal pathogens) due to the use of water.	**Canada**

	Suggestion added to clarify the meaning of “to magnitude” in this context.	
33	In case of production of fish in freshwater aquaculture, the DT in Figure 1 can be used to magnitude hazardous events (e.g. unacceptable presence of faecal pathogens) due to the use of water. Proposed amendments: Can be used to assess the impact of hazardous events	**New Zealand**
Paragraph 34		
34	When one or several risk factors have been identified by the DT, the possible presence of faecal pathogens should be considered as a CCP until control measures have been introduced and validated. Detailed information on the possible control measures can be found in the FAO/WHO documents referred to by footnotes at different steps or in relevant national guides. The statement that “the possible presence of faecal pathogens should be considered as a CCP until control measures have been introduced and validated” is not clear and should be re-written. The presence of pathogens is what the identification of CCPs is intended to address.	**Canada**
34	When one or several risk factors have been identified by the DT, the possible presence of faecal pathogens should be considered as a CCP until control measures have been introduced and validated. Detailed information on the possible control measures can be found in the FAO/WHO documents referred to by footnotes at different steps or in relevant national guides. Proposed amendment: Delete CCP and replace with Hazard. Reason: NZ suggest checking the whole document for the appropriate use of CCP vs Hazard. Presence of faecal pathogens is not a CCP, there is a misunderstanding of HACCP principles here.	**New Zealand**
Paragraph 35		
35	Seasonality refers to an enhanced risk in case of periods with higher temperatures or rain events increasing the risk of surface run-off water entering the ~~pond~~freshwater aquaculture.	**Japan**
Figure 1: Example of DT to magnitude the risk of faecal pathogens in freshwater aquaculture (*Adapted from Figure 4 of MRA33*)		
Figure 1	Figure 1: Example of DT to determine the magnitude of the risk of faecal pathogens in freshwater aquaculture (*Adapted from Figure 4 of MRA33*) Suggestion added to clarify the meaning of “to magnitude” in this context.	**Canada**
Figure 1	Figure 1: Example of DT to magnitude the risk of faecal pathogens in freshwater aquaculture (*Adapted from Figure 4 of MRA33*) MRA33 explains that the boxes of different color, represent different pathogen concentrations. Consider adding this information for better understanding.	**Canada**
Figure 1	Figure 1: Example of DT to magnitude the risk of faecal pathogens in freshwater aquaculture (*Adapted from Figure 4 of MRA33*) In figures 1, 2 and 3, the color coding of the “yes” pathway should be explained. Does the yellow/orange/red represent the respective level of risk. Does the green highlight the preferred pathway for food safety?	**Canada**

Figure 1	Figure 1: Example of DT to magnitude the risk of faecal pathogens in freshwater aquaculture (*Adapted from Figure 4 of MRA33*) Proposed amendment: Example of DT to asses the risk of faecal pathogens in freshwater aquaculture ponds Reason: Better describe the content of the figure	**New Zealand**
Figure 1	Figure 1: Example of DT to magnitude the risk of faecal pathogens in freshwater aquaculture (*Adapted from Figure 4 of MRA33*) This figure needs more explanation as in the FAO/WHO document from where it is extracted and thew addition of a hyperlink	**New Zealand**
Figure 1	Proposed amendment: Q1: Answer is Yes. Stop Reason: If the answer is yes, I would expect the questions to stop rather than going onto Q3.	**New Zealand**
Figure 1	Uruguay considera que se deben referenciarse los diferentes conceptos (patógenos, etc.) de otra forma, tal que pueda identificarse claramente en la versión blanco y negro.	**Uruguay**
Example of a DT for post-harvest handling and processing of freshwater fish which will potentially be eaten raw or undercooked (Adapted from Figure 5 of MRA33)		
Paragraph 36		
36	During post-harvest handling and processing of freshwater fish, the (continuing) DT in Figure 2 can be used to estimate the risk derived from the use of water. Proposed amendment: The DT Reason: Why continuing?	**New Zealand**
Paragraph 37		
37	Similar to freshwater aquaculture, when one or several risk factors have been identified by this DT, the possible presence of faecal pathogens should be considered as a CCP until control measures have been introduced and validated. Detailed information on the possible control measures at the descaling and degutting step can be found in Section 6 of the Codex Code of Practice for fish and fishery products (CXC 52-2003) or in national guides. The use of potable water at this step should also be applied for contact surfaces (knives, cutting boards). Keeping the fish at a low temperature (e.g. 4°C) is one of the most important measures related to fish preservation and microbial pathogen die-off after death. Seawater pathogens (e.g. Vp) may need to be considered when cross-contamination can occur at this stage between freshwater and seawater products.	**Japan**
37	Similar to freshwater aquaculture, when one or several risk factors have been identified by this DT, the possible presence of faecal pathogens should be considered as a CCP until control measures have been introduced and validated. Detailed information on the possible control measures at the descaling and degutting step can be found in Section 6 of the Codex Code of Practice for fish and fishery products or in national guides. The use of potable water at this step should also be applied for contact surfaces (knives, cutting boards). Keeping the fish at a low temperature (e.g. 4°C) is one of the most important measures related to fish preservation and microbial pathogen die-off after death. Seawater pathogens (e.g. Vp) may need to be considered when cross-contamination can occur at this stage between freshwater and seawater products. Proposed amendment: Minimizing microbial growth and deletion of 'after death'. Reason: Some pathogens survive at low temperatures	**New Zealand**
37	Similar to freshwater aquaculture, when one or several risk factors have been identified by this DT, the possible presence of faecal pathogens should be considered as a CCP until control measures have been introduced and validated. Detailed information on the	**New Zealand**

	possible control measures at the descaling and degutting step can be found in Section 6 of the Codex Code of Practice for fish and fishery products or in national guides. The use of potable water at this step should also be applied for contact surfaces (knives, cutting boards). Keeping the fish at a low temperature (e.g. 4°C) is one of the most important measures related to fish preservation and microbial pathogen die-off after death. Seawater pathogens (e.g. Vp) may need to be considered when cross-contamination can occur at this stage between freshwater and seawater products. Suggest deletion of the whole first sentence. Should this text stay, then we suggest substituting Hazard for CCP	
37	Al igual que en la acuicultura de agua dulce, cuando se hayan identificado a través de este árbol de decisión uno o varios factores de riesgo, la posible presencia de patógenos fecales se debería considerar un PCC hasta que se hayan introducido y validado medidas de control. En la Sección 6 del *Código de prácticas para el pescado y los productos pesqueros* del Codex o en las guías nacionales puede encontrarse información detallada sobre las posibles medidas de control en la fase de descamado y eviscerado. El uso de agua potable en esta fase también se debería aplicar a las superficies de contacto (cuchillos, tablas de cortar). Mantener el pescado a baja temperatura (por ejemplo, 4° C) es una de las medidas más importantes relacionadas con la conservación del pescado y ~~la eliminación~~ el control de patógenos ~~microbianos tras su muerte~~microbianos. Puede ser necesario tener en cuenta los patógenos del agua de mar (por ejemplo, Vp) cuando en esta fase pueda producirse contaminación cruzada entre los productos de agua dulce y los de agua de mar. Uruguay propone modificar la ultima parte de la frase.	**Uruguay**
Figure 2: Example of a DT for post-harvest handling and processing of freshwater fish which will potentially be eaten raw or undercooked *(Adapted from Figure 5 of MRA33)*		
Figure 2	Figure 2: Item 10) seems to be irrelevant in the DT as there is only one arrow leading to it and away from it. Further, it is not clearly associated with the use of water. Storing the fish/crustacean below 4degCel is essential to maintain its quality and integrity, and is mentioned in para 39. Therefore, we suggest removing item 10) as it is currently written. The same may apply to Figure 3, item 7) and Figure 4, item 11).	**Canada**
Figure 2	Figure 2, box 6) Footnote should be corrected from"1,6" to "a"	**Japan**
Figure 2	Again, this figure needs more explanations as in the FAO/WHO document from where it is extracted, including addition of a hyperlink.	**New Zealand**
Figure 2	Uruguay sugiere modificar o readecuar el concepto que se quiere plasmar con la flecha azul . Además entiende que se deben referenciar los diferentes conceptos (patógenos, etc.) de otra forma, tal que pueda identificarse claramente en la versión blanco y negro	**Uruguay**
Figure 2	a: Section 6 of the Codex Code of Practice for fish and Fishery products on aquaculture products. Suggestion to adjust legend or adjust figure. Box question 6 references footnote/legend 1, 6 but these do not appear here.	**Canada**
Example of DTs in case of marine or estuarine fish, including crustacean, potentially eaten raw or undercooked.		
title	Example of DTs in case of marine or estuarine fish, including ~~crustacean~~crustaceans, potentially eaten raw or undercooked.	**Canada**
Paragraph 38		
38	In case of on-board handling and processing of marine or estuarine fish, the DT in Figure 3 can be used to determine the magnitude of hazardous events (e.g. unacceptable presence of Vp) due to the use of seawater. Suggestion added to clarify the meaning of “to magnitude” in this context.	**Canada**

38	In case of on-board handling and processing of marine or estuarine fish, the DT in Figure 3 can be used to magnitude hazardous events (e.g. unacceptable presence of Vp) due to the use of seawater. It would be difficult to obtain seawater without presence of Vp, as Vp are indigenous marine bacteria and widespread, but only a small proportion are pathogenic for humans	**New Zealand**
38	In case of on-board handling and processing of marine or estuarine fish, the DT in Figure 3 can be used to magnitude hazardous events (e.g. unacceptable presence of Vp) due to the use of seawater. Proposed amendments: the DT in Figure 3 can be used to assess the risk of hazardous events Reason: Rewording	**New Zealand**
Paragraph 39		
39	The magnitude of hazardous ~~event~~ events depends on the on-board activities such as degutting, cavity-washing and the storage conditions. Keeping the fish on-board at a low temperature (e.g. 4°C) is again one of the most important measures. When one or several risk factors have been identified by the DT, the possible presence of pathogens such as Vp should be considered as a CCP until the handling and processing have been reviewed to control the risk and this revision has been validated. The risk can be further reduced if seawater can be used from areas that are known to be less contaminated or when the possibility exists to use potable water on-board.	**Canada**
39	The magnitude of hazardous event depends on the on-board activities such as degutting, cavity-washing and the storage conditions. Keeping the fish on-board at a low temperature (e.g. 4°C) is again one of the most important measures. When one or several risk factors have been identified by the DT, the possible presence of pathogens such as Vp should be considered as a CCP until the handling and processing have been reviewed to control the risk and this revision has been validated. The risk can be further reduced if seawater can be used from areas that are known to be less contaminated or when the possibility exists to use potable water on-board. Substitute hazard for CCP	**New Zealand**
39	The magnitude of hazardous event depends on the on-board activities such as degutting, cavity-washing and the storage conditions. Keeping the fish on-board at a low temperature (e.g. 4°C) is again one of the most important measures. When one or several risk factors have been identified by the DT, the possible presence of pathogens such as Vp should be considered as a CCP until the handling and processing have been reviewed to control the risk and this revision has been validated. The risk can be further reduced if seawater can be used from areas that are known to be less contaminated or when the possibility exists to use potable water on-board. Suggest rewording this for clarity	**New Zealand**
Figure 3: Example of DT to magnitude the risk of pathogens such as Vp, in on-board marine or estuarine handling and processing of fish (*Adapted from Figure 6 of MRA33*)		
Figure 3	**Figure 3: Example of DT to determine the magnitude of the risk of pathogens such as Vp, in on-board marine or estuarine handling and processing of fish** (*Adapted from Figure 6 of MRA33*) Suggestion added to clarify the meaning of “to magnitude” in this context.	**Canada**
Figure 3	**Figure 3: Example of DT to magnitude the risk of pathogens such as Vp, in on-board marine or estuarine handling and processing of fish** (*Adapted from Figure 6 of MRA33*)	**New Zealand**

	Proposed amendments: Example of DT to assess the risk of pathogens Reason: Rewording	
Figure 3	Similar to previous comments this needs to be properly reference with the addition of a hyperlink. Some explanations are missing to fully understand it and should be taken from MRA33 from where this figure has been extracted, to be able to fully understand the boxes of pathogens with different colours. The blue arrow needs to be clarified.	**New Zealand**
Figure 3	Uruguay sugiere modificar o readecuar el concepto que se quiere plasmar con la flecha azul . Además considera que se deben referenciar los diferentes conceptos (patógenos, etc.) de otra forma, tal que pueda identificarse claramente en la versión blanco y negro	**Uruguay**
Paragraph 41		
41	Similar to handling and processing of freshwater fish, when one or several risk factors have been identified by this DT, the possible presence of pathogens such as Vp should be considered as a CCP until control measures have been introduced and validated during on-shore handling and processing. Risk factors and control measures are similar as for post-harvest handling and processing of freshwater fish. As determined previously substitute hazard for CCP. Reason: Same justification as above	**New Zealand**
Figure 4: Example of DT to magnitude the risk of pathogens such as Vp, in onshore marine or estuarine handling and processing of fish (*Adapted from Figure 7 of MRA33*)		
Figure 4	**Figure 4:** Example of DT to magnitude the risk of pathogens such as Vp, in onshore marine or estuarine handling and processing of fish (*Adapted from Figure 7 of MRA33*) Suggest to include color codes for arrows and boxes for better understanding.	**Canada**
Figure 4	**Figure 4:** Example of DT to determine the magnitude of the risk of pathogens such as Vp, in onshore marine or estuarine handling and processing of fish (*Adapted from Figure 7 of MRA33*) Suggestion added to clarify the meaning of “to magnitude” in this context.	**Canada**
Figure 4	Again, this figure needs more explanations as in the FAO/WHO document from where it is extracted	**New Zealand**
Figure 4	Uruguay sugiere revisar el contenido de los cuadros , en particular el punto 13). Adicionalmente sugiere revisar la codificación de la coloración vinculada a los diferentes conceptos.	**Uruguay**
10. WATER SAFETY MANAGEMENT		
Paragraph 42		
42	Elaboration and implementation of management procedures, for instance the design of a management plan that should be site specific, consider relevant microbiological hazards and hazardous events and the outcomes of the fit-for-purpose assessment of the water system. Efficient and appropriate preventive measures should be implemented, and possible corrective measures should be anticipated when required based on the outcome of the monitoring. To be along with the scope	**Japan**
42	M~~Elaboration~~ anagement procedures should be elaborated and ~~implementation of management procedures~~implemented. For instance, ~~for instance~~ the design of a management plan that ~~should be~~ is site specific, ~~consider~~ considers relevant hazards and hazardous events	**Canada**

	and the outcomes of the fit-for-purpose assessment of the water system. Efficient and appropriate preventive measures should be implemented, and possible corrective measures should be anticipated when required based on the outcome of the monitoring. Suggestions of different words to improve readability.	
Paragraph 43		
43	The management procedures should include measures for preventing cross-connections between the safe supply of ~~water of~~ potable ~~quality~~ water and any unsafe or questionable supply of water of non-potable quality or sewer disposal system. Suggest to use the same wording for all the annexes “potable water”.	**Canada**
43	The management procedures should include strict segregation measures for preventing cross-connections between the safe supply of water of potable quality and any unsafe or questionable supply of water of non-potable quality or sewer disposal system. Suggestion of additional words for stronger recommendation.	**Canada**
43	42bis Multi-barrier approach (e.g. protecting the water source from faecal contamination, washing with portable water, controlling temperature and time and avoiding cross-contamination) is possible with regard to water safety management. The management procedures should include measures for preventing cross-connections between the safe supply of water of potable quality and any unsafe or questionable supply of water of non-potable quality or sewer disposal system. Japan proposes to insert a following sentence in Section 10 based on JEMRA recommendation (MRA 33 p53).	**Japan**
43	Plant and utilities layout design should be aligned with ~~The~~ management procedures ~~should~~ that include measures for preventing cross-connections between the safe supply of water of potable quality and any unsafe or questionable supply of water of non-potable quality or sewer disposal system. The Philippines suggests to revise the text highlighting the plant and utilities layout design that should be aligned with management procedures.	**Philippines**
Paragraph 44		
44	When reusing water, the need for water treatments (e.g. biological, chemical, physical, irradiation) should be considered to ensure that the water reuse system itself is safe, including conditions related to distribution, storage and use where relevant. Not clear if "safe" here indicates safety of water generated from the reuse system or the reuse system itself. Added a word assuming it is latter.	**Japan**
44	Proposed amendments: ...related to distribution, storage and use where relevant. This also applies to reuse water. Reason: Any own source water may need treatment. Town supply/potable water may also need treatment depending on its intended use and initial quality.	**New Zealand**
Paragraph 45		
45	Implement plans with operational monitoring of the water used in the production and processing of fish and fishery products to provide insight into process performance and associated water ~~safe~~ safety and quality issues, enabling rapid remedial action in the event of nonconformity. Where appropriate, the plan should be supplemented with microbiological control of the finished fish and fishery products.	**Canada**

45	Implement plans with operational monitoring of the water used in the production and processing of fish and fishery products to provide insight into process performance and associated water safe and quality issues, enabling rapid remedial action in the event of nonconformity. Where appropriate, the plan should be supplemented with microbiological control of the finished fish and fishery products. "Process perfomance" is not very clear. What "process" and what "performance" ? What is meant by plans?	**Japan**
45	Proposed amendments: "...and associated water safety and..." Reason: What is meant by microbiological control of the finished products. Does this mean microbiological monitoring of the finished product for the purpose of checking water quality? This should not be necessary to confirm water quality.	**New Zealand**
10.1 Treatments for fit for purpose water		
Paragraph 46		
46	Proposed amendments: Treatment options will have to be designed on a case-by-case basis and consider both the hazards from faecal pollution as well as those from the endogenous marine flora (e.g. pathogenic Vibrio spp. and C. botulinum). Reason: Broaden the micro-organisms to be considered rather than just faecal sources.	**New Zealand**
46	Treatment options will have to be designed on a case-by-case basis and consider both the hazards from faecal pollution as well as those from the endogenous marine flora (e.g. pathogenic Vibrio spp. and C. botulinum) and ensure minimum sideffects on fish and fishery products.	**Saudi Arabia**
Paragraph 47		
47	There are several treatment technologies that can recover water of a quality that makes it fit-for-purpose or that can eliminate or inactivate microorganisms or reduce them to acceptable levels for use/reuse water. These treatment technologies ~~including~~include, but are not limited to, heating (e.g. pasteurization or boiling); use of a chemical disinfectant such as chlorine, chlorine dioxide, ozone; ~~or~~ and/or physical treatments such as membrane filtration and irradiation (e.g. UV light). Guidance on resistance to chlorination by different microbiological hazards is provided in Table 1.	**Canada**
47	There are several treatment technologies that can recover water of a quality that makes it fit-for-purpose or that can eliminate or inactivate microorganisms or reduce them to acceptable levels for use/reuse water. These treatment technologies including, but are not limited to, heating (e.g. pasteurization or boiling); use of a chemical disinfectant such as chlorine, chlorine dioxide, ozone; or physical treatments such as membrane filtration and irradiation (e.g. UV light). Guidance on resistance to chlorination by different microbiological hazards is provided in Table 1. Proposed amendments: These treatment technologies include Reason: Editing	**New Zealand**
47	There are several treatment technologies that can recover water of a quality that makes it fit-for-purpose or that can eliminate or inactivate microorganisms or reduce them to acceptable levels for use/reuse water. These treatment technologies including, but are not limited to, heating (e.g. pasteurization or boiling); use of a chemical disinfectant such as chlorine, chlorine dioxide, ozone; or physical treatments such as membrane filtration and irradiation (e.g. UV light). Guidance on resistance to chlorination by different microbiological hazards is provided in Table 1.	**New Zealand**

	Proposed amendments: That can provide water Reason: correct word	
Paragraph 48		
48	Appropriate parameters of treatments applied to reuse ~~water~~ water, intended to be used as a food ingredient or in a manner that will contact fish and fishery ~~products~~ products, should be monitored to ensure such water will be fit for purpose. The efficacy of such treatments should be periodically verified through appropriate microbiological testing of the treated water. Addition of commas	**Canada**
48	Appropriate parameters of treatments applied to reuse water intended to be used as a food ingredient or in a manner that will contact fish and fishery products should be monitored to ensure such water will be portable or fit for purpose, respectively. The efficacy of such treatments should be periodically verified through appropriate microbiological testing of the treated water. Water as food ingredient should be portable.	**Japan**
48	Proposed amendments: Appropriate parameters of treatments applied to water and reuse water intended to be used as a food ingredient or in a manner that will contact fish and fishery products should be monitored to ensure such water will be fit for purpose. The efficacy of such treatments should be periodically verified through appropriate microbiological testing of the treated water. Reason: This clause is also applicable to water when first used.	**New Zealand**
10.2 Water quality monitoring		
Paragraph 49		
49	Water monitoring is a core element of food safety management systems and is essential to ensure water quality and safety and to define fit-for-purpose water in the Fishery sector. Irrespective of the source, water used in the production and processing of fish and fishery products must be frequently monitored to ensure that it is safe. Consider adding information on the practice of trending monitoring results, as mentioned in Annex III.	**Canada**
49	Water monitoring is a core element of food safety management systems and is essential to ensure water quality and safety and to define fit-for-purpose water in the Fishery sector~~. Irrespective of the source, .~~ water used in the production and processing of fish and fishery products ~~must~~ should be frequently monitored to ensure that it is ~~safe~~of the fit for purpose quality. Japan proposes to change the second sentence of para 48 since the source of water already be taken into account in the fit-for-purpose assessment. In the Codex documents, generally "should" is used instead of "must".	**Japan**
Paragraph 50		
50	Monitoring practices should be risk-based, covering the whole water ~~system from the~~ system, from source to ~~the~~ point of use, ~~including considering~~ and consider any the historical data ~~to determine~~ in determining the frequency of monitoring.	**United Kingdom**
Paragraph 51		

51	Fit for purpose assessment should include an operation-specific assessment to determine which indicator(s) (e.g. microbiological parameters) are appropriate to be used. Geographical region and temperature of seawater should be considered as they may impact the level of potentially pathogenic bacteria, viruses, and parasites. "operation-specific assessment" is mentioned here for the first time. Suggest to add para 30bis.	**Japan**
51	Fit for purpose assessment should include an operation-specific assessment to determine which indicator(s) (e.g. microbiological parameters) are appropriate to be used. Geographical region and temperature of seawater should be considered as they may impact the level of potentially pathogenic bacteria, viruses, and parasites. Proposed amendments: In the case of seawater, geographical region and temperature.... Reason: Clause is about water and seawater, however this sentence is just about seawater.	**New Zealand**
51	Fit for purpose assessment should include an operation-specific assessment to determine ~~which indicator(s) (e.g. microbiological parameters) are~~ the most appropriate indicator(s) to be ~~used~~used to monitor the water source or the reconditioning treatment for water reuse for the identified hazards and reduce the risk of human exposure to pathogens. Geographical region and water temperature ~~of seawater~~ should be considered as ~~they~~ these may impact the level of potentially pathogenic bacteria, viruses, and parasites. Suggest that this isn't limited to sea water only as the Water used in the production and processing of fish and fishery products can be obtained from many sources which includes other types of water.	**United Kingdom**
Paragraph 52		
52	No single microbiological indicator is suitable in all circumstances. Microbiological indicators have disadvantages that must be understood when using test results to assess the microbiological quality of water~~, when~~. When possible, testing for multiple groups of indicators should be more appropriate. ~~Consideration should be given that on a sample-by-sample basis, there is rarely a direct correlation between indicator microorganisms such as coliform bacteria and indigenous marine pathogenic bacteria such as *Vibrio* spp. enteric protozoans, or viruses. The observed low correlations between microbiological indicators and pathogens, in different types of water used for food production and processing and the occasional failure of indicators to predict pathogen occurrence, should be given. However, testing for pathogens alone is also discouraged because this testing does not afford the degree of health protection given by testing for traditional non-pathogenic indicators.~~ **Consideration should be given that on a sample-by-sample basis, there is rarely a direct correlation between indicator microorganisms such as coliform bacteria and indigenous marine pathogenic bacteria such as *Vibrio* spp. enteric protozoans, or viruses. The observed low correlations between microbiological indicators and pathogens, in different types of water used for food production and processing and the occasional failure of indicators to predict pathogen occurrence, should be given. However, testing for pathogens alone is also discouraged because this testing does not afford the degree of health protection given by testing for traditional non-pathogenic indicators.** The text that are in bold are difficult to understand. Recommend re-writing these sentences to clarify and improve the message and the recommendation.	**Canada**
52	No single microbiological indicator is suitable in all circumstances. Microbiological indicators have disadvantages that must be understood when using test results to assess the microbiological quality of water, when possible, testing for multiple groups of indicators should be more appropriate. Consideration should be given that on a sample-by-sample basis, there is rarely a direct correlation between indicator microorganisms such as coliform bacteria and indigenous marine pathogenic bacteria such as *Vibrio* spp. enteric protozoans, or viruses.	**New Zealand**

	The observed low correlations between microbiological indicators and pathogens, in different types of water used for food production and processing and the occasional failure of indicators to predict pathogen occurrence, should be given. However, testing for pathogens alone is also discouraged because this testing does not afford the degree of health protection given by testing for traditional non-pathogenic indicators. Proposed amendments: there is rarely a direct correlation between indicator microorganisms such as coliform bacteria and enteric protozoans, or viruses, and no correlation at all with indigenous pathogenic bacteria such as Vibrio spp. Reason: Bacteria such as Vp are indigenous in the marine environment and their presence is independent of any faecal pollution event	
52	No single microbiological indicator is suitable in all circumstances. Microbiological indicators have disadvantages that must be understood when using test results to assess the microbiological quality of water, when possible, testing for multiple groups of indicators should be more appropriate. Consideration should be given that on a sample-by-sample basis, there is rarely a direct correlation between indicator microorganisms such as coliform bacteria and indigenous marine pathogenic bacteria such as *Vibrio* spp. enteric protozoans, or viruses. The observed low correlations between microbiological indicators and pathogens, in different types of water used for food production and processing and the occasional failure of indicators to predict pathogen occurrence, should be given. However, testing for pathogens alone is also discouraged because this testing does not afford the degree of health protection given by testing for traditional non-pathogenic indicators. Proposed amendments: ...should be considered Reason: Correct word	**New Zealand**
52	No single microbiological indicator is suitable in all circumstances. Microbiological indicators have disadvantages that must be understood when using test results to assess the microbiological quality of water, when possible, testing for multiple groups of indicators should be more appropriate. Consideration should be given that on a sample-by-sample basis, there is rarely a direct correlation between indicator microorganisms such as coliform bacteria and ~~indigenous~~ naturally-occurring marine pathogenic bacteria such as *Vibrio* spp. enteric protozoans, or viruses. The observed low correlations between microbiological indicators and pathogens, in different types of water used for food production and processing and the occasional failure of indicators to predict pathogen occurrence, should be given. However, testing for pathogens alone is also discouraged because this testing does not afford the degree of health protection given by testing for traditional non-pathogenic indicators.	**United Kingdom**
Paragraph 53		
53	The recommendation or message in this paragraph is not clear. Suggest re-writing the paragraph.	**Canada**
53	UK has suggested combining para 51 and 53, as there is overlap.	**United Kingdom**
Table 1. Risk Ranking on the most significant waterborne microbiological hazards of relevance to fish and fishery products.		
Table 1	For non- tuberculous mycobacterium low resistance to chlorine should be revised to high chorine resistance as mentioned in the given reference [7(FAO & WHO. 2023. Safety and quality of water used in the production and processing of fish and fishery products – Meeting report. Microbiological Risk Assessment Series, No. 41. Rome. https://doi.org/10.4060/cc4356en)] In addition, the data available at the link below may also be referred: https://www.ncbi.nlm.nih.gov/books/NBK579466/table/ch7.tab1/?report=objectonly	**India**
Table	Japan suggests that the JEMRA inputs should be used as the basis for the discussion in CCFH.	**Japan**

1	To be align with Table 1 in JEMRA report 41, Japan suggests that Table 1 of Appendix 1 should be revised as below. Bacillus cereus High(spores) Clostridium botulinum High(spores) Listeria monocytogenes Moderate Pseudomonas aeruginosa Moderate Nontuberculosis mycobacteria High	
Table 1	Consider including the defn of indicator micro orgs from Annex III Indicator microorganisms13: microorganisms used as an indicator of quality, process efficacy, or the hygienic status of food, water, or the environment, commonly used to suggest conditions that would allow the potential presence or proliferation of pathogens. Examples of indicator microorganisms include mesophilic aerobic bacteria, coliforms or fecal coliforms, E. coli and Enterobacteriaceae (from the Guidelines for the control of Shiga toxin-producing E. coli (STEC) in raw beef, fresh leafy vegetables, raw milk and raw milk cheeses, and sprouts).	**New Zealand**
Notes	Notes: The hazards listed are assumed to represent all regions globally and include those hazards relevant to all types of water, including fresh-, brackish- and seawater. The selection of hazards when evaluating risk should be based on local circumstances, particularly where the water is used. The risk ranking in the table refers to the risk for consumers of fishery products and is based on the perceived frequency and consequence of disease: (+) low risk to consumers; (++) common cause of foodborne disease, but of variable importance for fishery products; and (+++) cause of disease by fishery products and of potentially high risk to consumers. Ensure the note is directly under the table for better understanding.	**Canada**

Annex III: Production of Milk and Milk products

title	General Comments: 1. We conditionally support Annex III: Production of Milk and Milk Products, on the basis that the information related to the standard of first use water (Paragraph 37. onwards) is moved out of Annex III into a separate Annex, and that all Tables and Figures are reviewed and adapted to be able to be applied in all Codex countries. 2. We support Annex IV: Technologies for recovery and treatment of water for reuse. 3. We support Revision of General to cross reference Annex IV 4. MRA40 document is referenced as the source document for much of the content of this Guideline. We assume this is intended to be Safety and quality of water use and reuse in the production and processing of dairy products1, however this has not been made clear. 5. Given the significant work in separating out the standard for first use water into a new Annex, we would want the Annex to remain at step 3. 6. Annexes III and IV place an almost exclusive emphasis on microbiological contaminants but lack sufficient emphasis on chemical contaminants, including disinfection by-products (DBPs) and disinfection (chlorination) that is necessary for microbiological control. These topics are intertwined and if the reuse. New Zealand 6. Not sure what they want given the statement below about paramount importance of microsafety and suggestion to move it in front. The situation when clorine disinfectant will not work is quite possible	**New Zealand**
title	NZ stakeholders have suggested splitting first use and reuse into separate annexes. However, given the significant work involved to date, but recognising the utility of separation, NZ is raising this as a point of discussion for consideration at this time.	**New Zealand**
title	The United States believes that the following sections of Annex III: Production of Milk and Milk Products should be moved to the proposed new Annex IV: • Water Fit-For-Purpose Assessment and Water Safety Management (working document and associated tables and figures (CX/FH 24/54/7 pp 34 – 65) • The first example within the section entitled Examples of Fit-For-Purpose Reuse Water Applications and the associated figure ((CX/FH 24/54/7 pp 66 – 67) This content primarily discusses the development of a water safety plan and how to integrate water fit-for-purpose control measures into the food safety/Hazard Analysis Critical Control Points (HACCP) plan, which is generally applicable to all water use and reuse within a food production system, and not just milk and milk products.	**USA**
title	The International Dairy Federation (IDF) which has represented the international dairy sector for over 120 years and members involved in dairy farming, milk hauling, dairy processing, warehousing and distribution, is respectfully providing specific edits, deletions and additions in order to improve the informational value, consistency and clarity of this Annex.	**IDF/FIL**

INTRODUCTION		
Paragraph 3		
3	Proposed amendments: If water used in the production of milk and milk products is not fit for its intended purpose, it may be a source of microbiological hazards such as Listeria monocytogenes, Campylobacter spp., Bacillus cereus, Staphylococcus aureus, Salmonella spp., Shiga-toxin producing Escherichia coli and protozoa from cross-contamination. The use of non-fit for purpose water in dairy operations may also contribute to the distribution and multiplication of such pathogens. Reason: Whilst protozoa is not commonly present in milk and milk products, it may however become present from cross-contamination of water and so this should also be considered.	**New Zealand**
3	If water used in the production of milk and milk products is not fit for its intended purpose, it may be a source of microbiological hazards such as *Listeria monocytogenes, Campylobacter* spp.*, Bacillus cereus, Staphylococcus aureus, Salmonella* spp. and Shiga-toxin producing *Escherichia coli*, *as well as parasites such as Giardia, cryptosporidium, etc*. The use of non-fit for purpose water in dairy operations may also contribute to the distribution and multiplication of such pathogens. While not specific to dairy, IDF suggests the addition of parasites to emphasize that other microbiological hazards in addition to bacteria can lead to consumer illness and trade disruptions.	**IDF/FIL**
PURPOSE AND SCOPE		
Paragraph 5		
5	~~These guidelines provide~~ This annex provides recommendations for the microbiologically safe use and reuse of water from the dairy farm to the dairy ~~manufacturing~~ manufacturing/processing plant. ~~These guidelines are~~ It is intended for FBOs and competent authorities, as appropriate, to provide for practical and applicable reuse of water in the dairy sector. ~~These guidelines~~ This annex also ~~provide~~ provides examples of fit-for-purpose use and reuse of water. The scope of ~~these guidelines~~ the annex strongly focuses on the reuse of water since this provides a significant opportunity to limit the need for external water sources.	**Canada**
5	These guidelines provide recommendations for the microbiologically safe use and reuse of water from the dairy farm to the dairy manufacturing plant. These guidelines are intended for FBOs and competent authorities, as appropriate, to provide for practical and applicable reuse of water in the dairy ~~sector~~sector by applying the principle of fit for purpose using a risk-based approach. These guidelines also provide examples of fit-for-purpose use and reuse of water. The scope of these guidelines strongly focuses on the reuse of water since this provides a significant opportunity to limit the need for external water sources. The Philippines suggests the addition of the phrase “by applying the principle of fit for purpose using a risk-based approach” to be consistent with the Purpose and Scope in the two other annexes since the Annex also covers the principle of fit for purpose using a risk-based approach.	**Philippines**
USE		
Paragraph 6		
6	This annex ~~These guidelines~~ should be used in conjunction with the General Section of these guidelines and the following Codex Alimentarius guidance:	**Canada**
DEFINITIONS		

Cleaning-In-Place (CIP) systems	**Cleaning-In-Place (CIP) systems:** water-based cleaning and disinfecting systems used to clean and disinfect product flow pipes and equipment without disassembly (*from MRA40*). The definition of MRA40 needs to be fully referenced with a hyperlink.	**New Zealand**
Cleaning-In-Place (CIP) systems	**Cleaning-In-Place (CIP) systems:** water-based cleaning and disinfecting systems used to clean and disinfect product flow pipes and equipment without disassembly (*from MRA40*).Condensate: water recovered by condensing water vapor, for instance water vapor recovered from the drying of dairy materials/products. As the main international organization representing dairy producers and processors, we believe that this term is a important to the understanding and clarity of this annex as permeate, retentate, etc. and is commonly referred to in dairy regulations of some Codex member countries. The understanding of this term is important to the clarity of this Annex. Therefore we are proposing to move this definition back in this annex.	**IDF/FIL**
Dairy effluents	Dairy effluent definition and para, 76. are in conflict. One excludes black and grey water, the other includes black and grey water. This definition should be amended to include black and grey water to be consistent with the rest of the Annex.	**New Zealand**
Dairy effluents	**Dairy effluents:** water from cleaning and disinfection, or other operations involving water, during the manufacture of milk products, including both for-food-contact applications and ~~not-for-food-contact~~ non-food-contact applications, and which contains identifiable substances. Dairy effluents do not include black[8] and grey[9] waters *(from MRA40).* Change to non-food contact surfaces for consistency all throughout the document.	**Philippines**
Dairy effluents	**Dairy effluents:** water from cleaning and disinfection, or other operations involving water, during the manufacture of milk products, including both for-food-contact applications and not-for-food-contact applications, and which contains identifiable substances. ~~Dairy effluents do not include black[8] and grey[9] waters *(from MRA40).*~~ *Diafiltration: a membrane separation process where separation efficiency of protein components is improved by the addition of water to dilute the feed stream and enhance the washout of small molecules such as lactose and minerals.* IDF suggests removing this part of the definition to reflect the evolution of technologies and regulations around the world to allow for a wider reuse of water. IDF recommends adding a definition for diafiltration since this term is used later in the dairy annex.	**IDF/FIL**
Indicator microorganisms	**Indicator microorganisms**~~[10]~~**:** microorganisms used as an indicator of quality, process efficacy, or the hygienic status of food, water, or the environment, commonly used to suggest conditions that would allow the potential presence or proliferation of pathogens. Examples of indicator microorganisms include mesophilic aerobic bacteria, coliforms or fecal coliforms, *E. coli* and Enterobacteriaceae (from the *Guidelines for the control of Shiga toxin-producing E. coli (STEC) in raw beef, fresh leafy vegetables, raw milk and raw milk cheeses, and sprouts*). IDF recommends delete note 10. This foot note links “indicator organisms” with “utility organisms”, two entirely different categories of organism and one is not a subset of the other so remove the footnote reference and IDF suggested a paragraph later in the text.	**IDF/FIL**
Permeate	**Permeate:** the fluid derived from milk or other milk products obtained after removing milk constituents by membrane filtration (Ultra-filtration (UF), Micro-filtration (MF), Reverse Osmosis (RO), Reverse Osmosis & Polishing (ROP), Nano-Filtration (NF)) (*from MRA40*).	**Canada**

	Retentate was defined in Annex IV. It is not clear what the difference between permeate and retentate is. Consider adding a definition for retentate, if necessary.	
Permeate	**Permeate:** the fluid derived from milk or other milk products obtained after removing milk constituents by membrane filtration (Ultra-filtration (UF), Micro-filtration (MF), Reverse Osmosis (RO), Reverse Osmosis & Polishing (ROP), Nano-Filtration (NF)) (*from MRA40*). Retentate: the product obtained by concentrating milk constituents using membrane filtration (UF /MF/ RO / Reverse Osmosis and Polishing water (ROP)/ NF) technology for milk or milk products (editorial from MRA40). As for condensate, the definition of retentate was in the draft Annex IV when in-fact, it should be in the dairy annex. It could appear in both, but it does need to be in the dairy annex.	**IDF/FIL**
Stagnant Water	**Stagnant Water:** water that occurs as the result of setting, pooling or otherwise accumulating, allowing for the accumulation of organic matter and growth of unwanted microorganisms, ~~yeast~~ including yeasts and ~~mold~~molds. Usually found on floors and other areas that do not allow water to drain to floor drains. Technical: fungi (made up of yeasts and molds)are one of the major groups of microorganisms. It would be appropriate to either end the sentence after the word 'microorganism' or else add the word 'including'.	**United Kingdom**
Water reuse scenario	**Situación de reutilización del agua**: la combinación de la fuente de agua reutilizable y la aplicación del agua reutilizada, incluidos aspectos específicos como la recuperación, el reacondicionamiento, el almacenamiento y la distribución (logística y tecnologías) (*del ERM40*). Uruguay considera que debe adecuarse la traducción del título de esta definición.	**Uruguay**
PRIMARY PRODUCTION AND TRANSPORT FROM THE FARM		
Paragraph 7		
7	An adequate supply of water of a suitable quality (fit-for-purpose) should be available for use in the various operations, including further processing on dairy farms. The risk associated with the water source generally increases from municipality water, deep well water, hygienically collected rainwater, ground water to surface water. Japan proposes to insert a sentence, taken from para 10, to provide the insight on risk assosiated with the potential water sources at primary production.	**Japan**
7	An adequate supply of water ~~of a suitable quality (fit-for-purpose)~~ fit-for-purpose should be available for use in the various operations, including further processing on dairy farms. Use of Water fit-for-purpose for consistency in the text. It is defined in the general section as “Water that is determined to be safe for an intended purpose through the identification, evaluation, and understanding of potential microbiological hazards and other relevant factors (e.g. history of use, the intended use of the food, etc.,) including the application of control measures such as treatment options and their efficacy to ensure effective elimination or mitigation of such hazards” that is applicable to Paragraph 7.	**Philippines**
Paragraph 8		

8	Water used as drinking water for ~~animal~~ animals should be fit for purpose and free from feed or faecal material to the extent of possible. Drinking troughs (or other vessels) should be regularly inspected and cleaned when dirty.	**Canada**
8	Water used as drinking water for animal should be fit for purpose (i.e. production of milk for raw milk products or not) and free from feed or faecal material to the extent of possible. Drinking troughs (or other vessels) should be regularly inspected and cleaned when dirty. To clarify that the intended use of milk should be considered in fit-for-purpose assessment.	**Japan**
8	Water used as drinking water for animal should be fit for purpose and free from feed or faecal material to the extent of ~~possible. Drinking troughs (or other vessels)~~ possible and should be ~~regularly inspected~~ monitored and ~~cleaned when dirty~~analyzed periodically to determine microbiological quality (e.g. based on coliforms or aerobic total counts). The frequency of testing should depend on the risk associated with the water source and results based from historical data. The risk associated with the water source generally increases from municipality water, deep well water, hygienically collected rainwater, ground water to surface water. The Philippines proposes the revised Paragraph 8, 9 and 10 with minor edits on the texts as well as arrangement or chronology of paragraphs to convey a clearer information regarding water used as drinking water for animals tackled both in Paragraphs 8 and 10. Paragraphs 8, 9 and 10 to appear as: 8. Water used as drinking water for animal should be fit for purpose and free from feed or faecal material to the extent of possible and should be monitored and analyzed periodically to determine microbiological quality (e.g. based on coliforms or aerobic total counts). The frequency of testing should depend on the risk associated with the water source and results based from historical data. The risk associated with the water source generally increases from municipality water, deep well water, hygienically collected rainwater, ground water to surface water. 9. Drinking troughs (or other vessels) should be regularly inspected and cleaned when dirty. 10. Fit-for-purpose water, preferably potable water, should be used when washing the udder, especially in the production of milk for raw milk products.	**Philippines**
Paragraph 9		
9	Fit-for-purpose water, preferably potable water, should be used when washing of ~~the udder~~ rudders is recommended (e.g. when dirty), especially in the production of milk for raw milk products.	**Canada**
9	Stakeholders have noted that this clause should be removed as it is adequately covered in CAC/RCP 57-2004, Clause 3.1. And udder washing is not recommended. Reason: In countries where high intensity dairy farming is practised, washing of udders is not routine because of the risk of increasing mastitis infection when wash water runs from the udder to the end of teats providing bacteria with easy access to the teat canals. Were this paragraph to remain in the Annex, it is not complete as in cases where udders do need to be washed, there is no mention of drying udders post washing.	**New Zealand**
9	Drinking troughs (or other vessels) should be regularly inspected and cleaned when dirty. ~~Fit-for-purpose water, preferably potable water, should be used when washing of the udder is recommended (e.g. when dirty), especially in the production of milk for raw milk products.~~	**Philippines**
9	IDF questions whether this paragraph is needed as it is not fully aligned with CAC/RCP 57-2004, Clause 3.1. In particular, in countries where high intensity dairy farming is practised, washing of udders is not routine because of the risk of increasing mastitis infection when wash water runs from the udder to the end of teat providing bacteria with easy access to the teat canal.	**IDF/FIL**

Paragraph 10		
10	Water intended for drinking by animals should be analyzed periodically (e.g., once a month) to determine microbiological quality (e.g. based on coliforms or aerobic total counts). The frequency of testing should depend on the risk associated with the water source and results from previous testing. The risk associated with the water source generally increases from municipality water, deep well water, hygienically collected rainwater, ground water to surface water. It is worth providing an example which can be a minimum or maximum expectation. For example, is 1 year reasonable? Not likely. So what is the minimum expectation.	**Canada**
10	Water intended for drinking by animals should be analyzed periodically to determine microbiological quality (e.g. based on coliforms or aerobic total counts). The frequency of testing should depend on the risk associated with the water ~~source and~~ source, results from previous testing, treatment applied, and intended use of milk. The risk associated with the water source generally increases from municipality water, deep well water, hygienically collected rainwater, ground water to surface water. Japan proposes to add "treatment applied" (e.g. use chlorine for disinfection) as a aspect considered in water testing, in accordance with JEMRA report (MRA40), pp57-60. Intended use of milk should be also taken into account since it affects the risk for the consumer (refer to para 56 regarding monitoring frequency in this draft).	**Japan**
10	Water intended for drinking by animals should be analyzed periodically to determine microbiological quality (e.g. based on coliforms or aerobic total counts). The frequency of testing should depend on the risk associated with the water source and results from previous testing. ~~The risk associated with the water source generally increases from municipality water, deep well water, hygienically collected rainwater, ground water to surface water~~ Japan proposes to move this sentence to para 7. (Please refer to our comment on para 7)	**Japan**
10	Proposed amendments: delete ..."or aerobic total counts." Reason: We have proposed that Aerobic total counts are removed as these are not a good indicator of water in animal troughs, because they are extremely variable. The routine microbiological testing of on-farm animal drinking water assumes both the availability of testing laboratories and the economic means to bear the additional costs. Whilst this may be a common practice amongst farms in wealthy nations (that are least likely to need the testing), it may not be practical for farms in poorer nations (that are likely to be in most need of testing). From an animal welfare perspective, as well as a farm productivity perspective, cows should not be drinking dirty water; but if that's all that's available, then there may not be a choice. Perhaps a more pragmatic recommendation be made that cows' drinking water meet either certain microbiological limits, or turbidity/colour limits that can be done at low cost, such as with a Secchi disk modified for relatively shallow water troughs.	**New Zealand**
10	Fit-for-purpose water, preferably potable w~~Water intended for drinking by animals~~ater, should be ~~analyzed periodically to determine microbiological quality (e.g. based on coliforms or aerobic total counts). The frequency of testing should depend on~~ used when washing the ~~risk associated with the water source and results from previous testing. The risk associated with the water source generally increases from municipality water~~udder, ~~deep well water, hygienically collected rainwater, ground water to surface water.~~especially in the production of milk for raw milk products.	**Philippines**
Paragraph 11		
11	Stagnant water in farms, milking and storage facilities should be avoided.	**Philippines**

	The Philippines suggests the addition of the word “farms” to reiterate the inclusion of farms, including its auxiliary and ancillary premises (e.g. holding pens, drinking troughs near grazing areas, etc.), in the statement as stagnant water should also be avoided in these areas.	
Paragraph 12		
12	Water fit for purpose should be available in areas designated for milking of dairy animals and milk storage, as well for use when rinsing, cleaning and disinfecting milking equipment, storage containers, vessels and tanks. It should be available at the dairy manufacturing plants, and elsewhere as required for the cleaning of transport facility equipment and tanks. Rinsing equipment, storage containers, vessels and tanks with water fit for purpose, should also be carried out after the use of chemical compounds and biocides for disinfection, when necessary. It may be necessary to further treat fit for purpose water with chemicals in addition to biocides in order to qualify the water for the rinsing of equipment, storage containers, vessels and tanks.	**IDF/FIL**
Paragraph 13		
13	New water sources used for rinsing, cleaning and disinfecting the product contact surfaces of processing equipment, tanks, vessels and facilities for milk transport from dairy farms, should be tested for microbiological quality before first use, and then regularly thereafter in a similar way as in dairy manufacturing plants. Records of analyses should be kept and made available to competent authorities at their request. Consider if we should add if testing is recommended before and/or after treatment of the water.	**Canada**
13	New water sources used for rinsing, cleaning and disinfecting the product contact surfaces of processing equipment, tanks, vessels and facilities for milk transport from dairy farms, should be tested for microbiological quality before first use, and then regularly thereafter in a similar way as in dairy manufacturing plants. Records of analyses should be ~~kept~~ maintained and ~~made~~ should be readily available to competent ~~authorities at their request~~authorities, when requested. The Philippines suggests minor edit on the sentence including changing the word “kept” to “maintained” as it is more appropriate in the context of the statement.	**Philippines**
13	New water sources used for rinsing, cleaning and disinfecting the product contact surfaces of processing equipment, tanks, vessels and facilities for milk transport from dairy farms, should be checked visually for clarity and odor as well as tested for microbiological quality where appropriate before first use, and then regularly thereafter in a similar way as in dairy manufacturing plants. Records of analyses should be kept and made available to competent authorities at their request.	**IDF/FIL**
Paragraph 14		
14	When ~~economically feasible at dairy farms or during transport, reusable water sourcing and reconditioning (as necessary) could add value for the milk production operations wishing to reduce overall consumption of externally sourced water, e.g. by collecting, recovering and reconditioning water used for rinsing and cleaning milking equipment and for cleaning on-farm milk storage containers, vessels and tanks. When~~ reusing and reconditioning water, the guidance provided below for dairy manufacturing plants should be followed. Japan proposes to delete this sentence or move to Introduction since it indicates only environmental impacts of water reuse at primary production, rather than impacts on food safety.	**Japan**

14	When economically feasible at dairy farms or during transport, reusable water sourcing and reconditioning (as necessary) could add value for the milk production operations ~~wishing~~ seeking to ~~reduce~~ minimize overall consumption of externally sourced water, e.g. by collecting, recovering and reconditioning water used for rinsing and cleaning milking equipment and for cleaning on-farm milk storage containers, vessels and tanks. When reusing and reconditioning water, the guidance provided below for dairy manufacturing plants should be followed. To change the word from “wishing” to “seeking” as it is more appropriate tone in the text.	**Philippines**
14	Cuando la leche cruda se someta a tratamiento térmico y se concentre mediante filtración por membrana en la granja lechera, el agua procedente de este proceso de concentración se puede utilizar para abrevar a los animales, limpiar las instalaciones de ordeño y de estabulación de los animales, así como el equipo de ordeño, siempre que sea adecuada para esta finalidad. Las aguas cloacales recicladas u otras aguas recogidas en la granja (por ejemplo, procedentes del enjuague, la limpieza y la desinfección,o de la posible producción de suero o lavado de quesos en la granja) pueden utilizarse, entre otros, para regar las pasturas o limpiar superficies que no estén en contacto con alimentos y que no puedan causar contaminación. Uruguay sugiere ajustar la traducción. Entiende que correspondería a aguas residuales recicladas en lugar de cloacales recicladas	**Uruguay**
14	When economically feasible at dairy farms or during transport, reusable water sourcing and reconditioning (as necessary) could add value for the milk production operations wishing to reduce overall consumption of externally sourced water, ~~e.g.~~ by collecting, recovering and reconditioning water used for rinsing and ~~cleaning milking equipment~~ cleaning, e.g. the animal housing facility, milk storage area, floors, walls and ceilings, and for rinsing, cleaning and disinfecting milking equipment, on-farm milk storage containers, vessels and tanks. ~~When reusing and reconditioning water,~~ Water recovered from the ~~guidance provided below for dairy manufacturing plants should~~ use of farm-based membrane filtration of the raw milk could also be ~~followed.~~similarly be used if it met the fit for purpose criteria Reworded to simplify and avoid repetition with following paragraph for better understanding.	**IDF/FIL**
Paragraph 15		
15	When raw milk is heat treated and concentrated using membrane filtration at the dairy farm, the water from the concentration process may be used for ~~animals~~ animal drinking, cleaning the milking and animal housing facility, as well as milking equipment, provided it is fit for purpose. Recycled sewage water or other water collected from the farm (e.g. from rinsing, cleaning and sanitizing, or from possible production of whey or wash of cheeses at the farm) can be used, for example, to irrigate grazing pastures or to clean non-food contact surfaces that cannot cause contamination.	**Canada**
15	When raw milk is heat treated and concentrated using membrane filtration at the dairy farm, the water from the concentration process may be used as drinking water for ~~animals drinking~~animals, cleaning the milking and animal housing facility, as well as milking equipment, provided it is fit for purpose. Recycled sewage water or other water collected from the farm (e.g. from rinsing, cleaning and sanitizing, or from possible production of whey or wash of cheeses at the farm) can be used, for example, to irrigate grazing pastures or to clean non-food contact surfaces that cannot cause contamination. To use drinking water for animals for grammatical improvement.	**Philippines**
15	~~When raw milk is heat treated and concentrated using membrane filtration at the dairy farm, the water from the concentration process may be used for animals drinking, cleaning the milking and animal housing facility, as well as milking equipment, provided it is fit for purpose. Recycled sewage water or other water collected from the farm (e.g. from rinsing, cleaning and sanitizing, or from possible production of~~	**IDF/FIL**

	~~whey or wash of cheeses at the farm) can be used, for example, to irrigate grazing pastures or to clean non-food contact surfaces that cannot cause contamination.~~ Reworded to simplify and avoid duplication with previous paragraph.	
DAIRY MANUFACTURING PLANT		
Paragraph 16		
16	Within a dairy manufacturing plant, water may be used as an ingredient, for cleaning and disinfecting production equipment, for heating and cooling of ingredients and finished milk products, as boiler feed water for the production of hot water and steam, and for facility (floors, walls, piping, etc.) cleaning, among other purposes. The availability and volume of water ~~fit~~ required for ~~purpose~~ dairy manufacturing may be limited by geography, climate and competing demands. Also, the dairy industry is continuing to evolve, utilizing facilities with large processing capacities and subsequently, larger water requirements. This large, concentrated demand for water in a small geographic location can stress the availability of water for necessary purposes, such as drinking, irrigation, etc. Water reuse is an important strategy for reducing water consumption from external sources. edited to ensure it does not contradict what is stated in para 7.	**Japan**
16	Within a dairy manufacturing plant, water may be used as an ingredient, for rinsing, cleaning and disinfecting production equipment, for heating and cooling of raw milk, ingredients and finished milk products, as boiler feed water for the production of hot water and steam, and for facility (floors, walls, piping, etc.) cleaning, among other purposes. The availability and volume of water fit for purpose may be limited by geography, climate and competing demands. Also, the dairy industry is continuing to evolve, utilizing facilities with large processing capacities and subsequently, larger water requirements. This large, concentrated demand for water in a small geographic location can stress the availability of water for necessary purposes, such as drinking, irrigation, etc. Water reuse is an important strategy for reducing water consumption from external sources.	**IDF/FIL**
GENERAL RECOMMENDATIONS		
title	GENERAL RECOMMENDATIONSNEW Consideration should be given for the installation of a system on the main incoming water line(s) to the dairy manufacturing plant to reduce any potential pathogenic bacteria or parasitic organisms, regardless of the source of the incoming water since dairy ingredients generally support the growth of these, if exposed to contaminate water.MOVED from para 33.It is of paramount importance that effective disinfection against microbiological hazards must never be compromised in attempting to meet guidelines for disinfectant by-products. IDF recommends adding two general recommendations to reflect important “best practices” concept and commonly used in some parts of the dairy industry. The second one is moved from later in the text here to emphasize the importance of the balance between sanitation and residues obtained from sanitation.	**IDF/FIL**
Paragraph 17		
17	Proposed amendment: delete "for food contact.." Reason: Words “for-food-contact” are not useful, rather misleading here. Missed bracket in the end.	**New Zealand**
17	Proposed amendment: Differentiation should be made between for-food-contact applications of water with direct or indirect contact with food materials (e.g. ingredient water, water used to wash, clean, or disinfect food contact surfaces) and non-food contact applications of	**New Zealand**

	water (e.g. boiler feed for technical steam, water needed to extinguish fires, or to wash vehicles (other than food and food ingredient transport vehicles), for cooling towers, to water lawns, to clean external surfaces or to flush toilets. Reason: This amendment will avoid confusion with culinary steam.	
17	Differentiation should be made between for-food-contact applications of water ~~with~~ such as direct or indirect contact with food materials (e.g. ingredient water, water used to ~~wash~~rinse, clean, or disinfect food contact ~~surfaces)~~ surfaces of processing equipment and transport vehicles) and non-food contact applications of water (e.g. technical steam, ~~boiler feed,~~ water needed to extinguish fires, or to wash ~~vehicles (other than food and food ingredient transport vehicles)~~the exterior of vehicles, for cooling towers, to water lawns, to clean ~~external~~ exterior surfaces or to flush toilets. IDF suggested several edits to this text to improve clarity and consistency. In particular, unless specified, boiler feed water could be used to produce steam that is used in product contact applications such as direct steam injection. IDF understand technical steam is clear enough.	**IDF/FIL**
Paragraph 18		
18	Measures should be taken to avoid or remove stagnant ~~water, condensation or steam~~ water from dairy manufacturing plants by the design, operation and maintenance of the plant as quickly and frequently as possible. Ventilation should be adequate to reduce/eliminate steam and condensation accumulation. IDF recommends deletion. The term stagnant water is covering those.	**IDF/FIL**
Paragraph 19		
19	Measures should be taken to capture in a sanitary manner, treat and reclaim water from various sources as quickly as possible after ~~it~~ its first use or when it originates from milk, whey or other dairy products within a dairy manufacturing plant.	**Canada**
19	Measures should be taken to capture in a sanitary manner, treat and reclaim water from various sources as quickly as possible after ~~it~~ its first use or when it originates from milk, whey or other dairy products within a dairy manufacturing plant. To insert “s” in the word “it” to correct grammar.	**Philippines**
Paragraph 20		
20.1	Potable water and reclaimed water from milk meeting potable water requirements can be used for any purpose in dairy manufacturing, including: Caution around this phrasing for it is not technically correct. That is, in what way does reclaimed "water" from milk meet potable water requirements? If what was meant here, is micro-based alone, then that alone does not qualify it to meet potable water requirements. There are added factors to consider such as minerals, possible grease/fats, denatured proteins & potential presence and accumulation of residues of veterinary drugs and other chemical contaminants etc. The sense of what is meant here (i.e. microbiologically-wise) either requires clarification or this should be struck out.	**Canada**
20.1.1	as a food ingredient; o to flush dairy materials out of the pipeline at the end of a production run and before the first rinse of the cleaning process; Sub bullet point added to clarify and better reflect terminology and practices used in the dairy sector.	**IDF/FIL**

20.1.2	Se puede utilizar el agua reciclada procedente del enjuague final de las superficies en contacto con los alimentos del equipo de elaboración, tanques, recipientes y utensilios de ordeño, o de otras fuentes sujetas a reacondicionamiento, si es necesario, en las siguientes operaciones: Uruguay considera que el termino utensilio no es adecuado que figure en este punto ya que se está contemplando la producción industrial.	**Uruguay**
20.1.2	for any direct or indirect contact with milk products, including for the first rinsing, cleaning, disinfection and final ~~rinse~~ rinsing of food-contact surfaces of processing equipment;	**IDF/FIL**
20.2	Recycled water from the final rinsing of food-contact surfaces of processing equipment, tanks, vessels and ~~utensils~~ utensils, milking equipment, or from other sources subject to reconditioning, if necessary, can be used:	**Canada**
20.2	Recycled water from the final rinsing of food-contact surfaces of processing equipment, tanks, vessels and utensils milking equipment, or from other sources subject to reconditioning~~, if necessary, can be used~~: words not necessary.	**IDF/FIL**
20.2.2	for cleaning non-food-contact surfaces ~~(walls, floors)~~; The list is not necessary and if the list is to be retained, it needs to be expanded, or listed as examples.	**IDF/FIL**
20.2.3	Proposed amendment: For food-contact applications or for the final rinse, if the reuse water is subjected to a microbiocidal process (e.g. thermal, UV treatment, filtration, chlorination, ozonation), sufficient to reduce microbiological risk to an acceptable level. Reason: It has to be microbiocidal, as all examples are. Unclear what 'other' are. Examples in brackets relate to a process, not to a level.	**New Zealand**
Paragraph 21		
21	The dairy plant should have an external water supply providing enough water of potable water quality and the water handling systems within the plant should maintain water quality to the point of first use. It is the responsibility of the FBO to manage any microbiological contamination of the water supply on its ~~premises~~premises including informing competent authorities should food be potentially affected. Sampling of water for microbiological testing is relevant upon any suspicion of contamination of the water on the premises. Suggest adding this information as it is relevant.	**Canada**
21	Proposed amendment: "....should have sufficient water supply to provide enough"..."to the point of use"	**New Zealand**
21	Resulta aceptable cualquier suministro externo de otro tipo de agua a la planta lechera para la producción de vapor, la extinción de incendios y la refrigeración siempre que el sistema de ~~manipulación~~ distribución del agua se dedique exclusivamente a estos fines y esté claramente marcado. Uruguay sugiere que se indique sistema de distribución en lugar de sistema de manipulación.	**Uruguay**
21	The dairy plant ~~should~~ may have an external water supply providing enough water of potable water quality and the water handling systems within the plant should maintain water quality to the point of first use. It is the responsibility of the FBO to manage any microbiological	**IDF/FIL**

	contamination of the water supply on its premises. Sampling of water for microbiological testing is relevant upon any suspicion of contamination of the water on the premises. In some parts of the world, the dairy plant may only have access to fit for purpose water, not potable water and this needs to be recognized.	
Paragraph 22		
22	Any external supply of other water to the dairy plant for the production of steam, firefighting and cooling is acceptable provided that the water handling system is dedicated for these purposes and is clearly marked. It is not clear what “external supply of other water” is? Is it non-potable water? If yes, suggest adding non-potable water.	**Canada**
22	Any external supply of other water to the dairy ~~plant~~ plant, e.g. for the production of steam, firefighting and ~~cooling~~ cooling, is acceptable provided that the water handling system is dedicated for these purposes and is clearly marked. Use of e.g. - non exhaustive list.	**IDF/FIL**
WATER INTENDED FOR REUSE		
Paragraph 24		
24	At dairy manufacturing plants, the technology to safely reuse water and dairy effluents to meet fit for purpose applications does exist, making this a viable option for dairy manufacturing plants to reduce their externally sourced water consumption. Attention ~~must~~ should be given to address any health risks associated with using reuse water in food production. Generally "should" is used in the codex documents, instead of "must".	**Japan**
24	En aquellas plantas que se cuenten con la tecnología~~En las plantas de fabricación de productos lácteos~~, se cuenta con la tecnología necesaria para la reutilización inocua del agua y los efluentes lácteos de una manera adecuada para su finalidad, por lo que esta es una alternativa viable para que las plantas de fabricación de productos lácteos reduzcan su consumo de agua de origen externo. Se debería prestar atención a cualquier riesgo para la salud vinculado al uso de agua reutilizada en la producción de alimentos. Uruguay sugiere modificar el comienzo del párrafo.	**Uruguay**
24	At dairy manufacturing plants, the technology to safely reuse water and dairy effluents to meet fit for purpose applications does exist, making this a viable option for dairy manufacturing plants to reduce their externally sourced water ~~consumption.~~ consumption (see Annex IV for additional details). Attention must be given to address any health risks associated with using reuse water in food production. placeholder if the annex IV is confirmed.	**IDF/FIL**
Paragraph 25		
25.1	reclaimed water ~~(reclaimed water) that originated~~ from milk, dairy ingredients or was part of a milk product (e.g. in milk powder or cheese manufacturing), water that has come into a dairy operation in the form of potable water and is recirculated until it is no longer suitable as potable water, Simpler language is proposed.	**Canada**
Paragraph 26		

26	Based on the fit-for-purpose assessment such reuse water can be used for different purposes, subject to appropriate treatment when ~~appropriate~~applicable:	**IDF/FIL**
26.1	as an ingredient; Seems relevant to explain this or to provide an example of when it can be used as an ingredient. Is reuse water suitable here only in a microbiological sense? Reuse water can also contain chemical contaminants & organic material. It seems important to identify this to indicate the need for treatment before it can be allowed as an ingredient into a food.	**Canada**
26.4	cleaning non-product contact ~~surfaces (walls, floors, etc.)~~surfaces; Consistency with previous comment.	**IDF/FIL**
Paragraph 27		
27	Technical expertise, outside the dairy manufacturing plant, ~~might~~ should be ~~needed for~~ considered to increase confidence in the design of safe water reuse systems in dairy operations.	**IDF/FIL**
TECHNOLOGIES FOR RECOVERY AND TREATMENT OF WATER FOR REUSE		
General recommendations		
Paragraph 28		
28	See Annex ~~IV~~IV Technologies for recovery and treatment of water reuse, including its definitions. Suggestion to add complete title of Annex IV.	**Canada**
Specific recommendations for use of reverse osmosis in the reuse of water in dairy production		
Paragraph 29		
29	RO water recovered from permeates of for example whey or water mixtures resulting from equipment and pipeline flushes typically has very low microbial counts. When the performance efficiency of RO has been subjected to a hazard analysis and validated, and is verified to be consistent, RO water may be used for the following purposes within approximately 24 hours after generation without additional microbiocidal treatment[11] for example: Suggest to explain why the time-limit to provide context, increase knowledge and implementation of the recommendation.	**Canada**
29	RO water recovered from ~~permeates of~~ permeates, for example whey or water mixtures resulting from equipment and pipeline ~~flushes~~ flushes, typically has very low microbial counts. When the performance efficiency of RO has been subjected to a hazard analysis and validated, and is verified to be consistent, RO water may be used for the following purposes within approximately 24 hours after generation without additional microbiocidal treatment[11] for example:	**Canada**
29	RO water recovered from permeates of for example whey or water mixtures resulting from equipment and pipeline flushes typically has very low microbial counts. When the performance efficiency of RO has been subjected to a hazard analysis and validated, and is verified to be consistent, RO water may be used for the following purposes based on risk assessment, or within approximately 24 hours after ~~generation~~ generation, without additional microbiocidal treatment[11] for example: Specifying a specific limit may be confused as prescriptive and may not be necessary. This wording provides flexibility not to mandate a risk assessment.	**IDF/FIL**

29.1	ingredient in milk products, e.g. reconstitution of dry ingredients and dairy powders, scalding of cheese curds and grains; Cheese grains is not common terminology. IDF suggests to add the term 'curds' for clarity.	**IDF/FIL**
29.6	cleaning of membrane filtration systems or washing of reusable packaging, boxes and product moulds; Reflects practices.	**IDF/FIL**
29.7	diafiltration, ~~i.e. process applied in combination with another membrane filtration method, where water is added to the membrane filtration retentate to flush out constituents to reduce product viscosity and to make the purification of lactose and minerals more efficient;~~ See suggestion for new definition.	**IDF/FIL**
Paragraph 30		
30	In dairy production, RO water of which the microbiological quality is uncertain (e.g. no microbiological testing, ~~indicating~~ indication of poor quality or no validation of the testing) and that will not be used within approximately 24 hours, should be subjected to an effective microbiocidal treatment. Suggestion to be more precise.	**Canada**
30	Proposed amendment: In dairy production, RO water of which the microbiological quality is uncertain (e.g. no microbiological testing, indicating of poor quality or no validation of the testing) and that will not be used within approximately 24 hours, based on a fit-for-purpose assessment may be subjected to microbiocidal treatment. Reason: Risk assessment should be used to determine if a microbiocidal treatment is required, aligning with the intent of 26.	**New Zealand**
30	In dairy production, RO water ~~of which the microbiological quality is uncertain (e.g. no microbiological testing~~should be subjected to microbiocidal treatment based on risk assessment, ~~indicating of poor quality~~ or ~~no validation of the testing) and that will~~ if not ~~be~~ used within ~~approximately~~ 24 ~~hours, should be subjected to microbiocidal treatment~~hours approximately.	**IDF/FIL**
Specific recommendations for the recovery of reclaimed water by condensation of vapours evaporated during concentration of milk and milk products		
title	**Specific recommendations for the recovery of reclaimed water from milk by condensation of vapours evaporated during concentration of milk and milk products**	**Canada**
Paragraph 32		
32	Due to the presence of organic material (different sources of milk products and technologies result in different qualities of organic material in this reclaimed water) which may support the growth of microorganisms, treatment of such condensate (e.g. by UV treatment, thermal treatment, microbiocidal treatment, biological filters, UF, MF, NF or RO filtration) may be required before this condensate water is reused for some applications, such as a food ingredient or for food-contact application. Untreated condensate water may be directly used for non-food-contact applications. For clarity.	**Canada**
Paragraph 33		
33	Reuse water from dairy processing operations is known to contain microorganisms that can form biofilms on stainless steel surfaces; as well as pathogenic bacteria, including pathogenic strains of *Escherichia coli*. It is therefore important that reuse water has an appropriate disinfection treatment when required, that achieves the guideline values for the verification of microbial quality appropriate to the intended	**Canada**

	use. The choice of disinfection treatment should also consider whether a residual disinfectant will persist throughout the maximum storage time of the reuse water, and, if not, then an additional preservative may be needed. Chemical disinfection of water will inevitably generate disinfection by-products whether it is externally sourced water or reuse water. The optimal choice of disinfectant will vary between different dairy manufacturing sites, depending upon their individual milk product range and method of recovering water for reuse, which will affect the organic loading. Unusual depletion of the disinfectant can arise from spikes in organic loading which need to be investigated rather than simply increasing the disinfectant dose. It is of paramount importance that effective disinfection against microbiological hazards must never be compromised in attempting to meet guidelines for disinfectant by-products. We suggest adding "when required", because we understand that not all reuse water from dairy processing needs a disinfection treatment. For example, in paragraph 32 the word “may be required” is used.	
33	Reuse water from dairy processing operations is known to contain microorganisms that can form biofilms on stainless steel surfaces; as well as pathogenic bacteria, including pathogenic strains of *Escherichia coli*. It is therefore important that reuse water has an appropriate disinfection treatment that achieves the guideline values for the verification of microbial quality appropriate to the intended use. The choice of disinfection treatment should also consider whether a residual disinfectant will persist throughout the maximum storage time of the reuse water, and, if not, then an additional preservative may be needed. Chemical disinfection of water will inevitably generate disinfection by-products whether it is externally sourced water or reuse water. The optimal choice of disinfectant will vary between different dairy manufacturing sites, depending upon their individual milk product range and method of recovering water for reuse, which will affect the organic loading. Unusual depletion of the disinfectant can arise from spikes in organic loading which need to be investigated rather than simply increasing the disinfectant dose. It is of paramount importance that effective disinfection against microbiological hazards must never be compromised in attempting to meet guidelines for disinfectant by-products. The 3rd sentence is duplicated in the draft ANNEX 4 para15, 2nd bullet The 6th sentence is duplicated in the draft ANNEX 4 para15, 2nd bullet.	**Japan**
33	Proposed amendments: Replace the word "preservative" for the word treatment. The use of the word preservative implies addition of a preservative product to water which his not the case, treatment is being applied and is the more appropriate term to use.	**New Zealand**
33	Move the last sentence to section 16 to 23 as appropriate. Reason: this is a critical statement and not exclusive to the methods in this section.	**New Zealand**
33	Reuse water from dairy processing operations is known to contain microorganisms that can form biofilms on stainless steel surfaces; as well as pathogenic bacteria, including pathogenic strains of *Escherichia coli*. It is therefore important that reuse water has an appropriate disinfection treatment that achieves the guideline values for the verification of microbial quality appropriate to the intended use. The choice of disinfection treatment should also consider whether a residual disinfectant will persist throughout the maximum storage time of the reuse water, and, if not, then an additional ~~preservative~~ treatment may be needed. Chemical disinfection of water will inevitably generate disinfection by-products whether it is externally sourced water or reuse water. The optimal choice of disinfectant will vary between different dairy manufacturing sites, depending upon their individual milk product range and method of recovering water for reuse, which will affect the organic loading. Unusual depletion of the disinfectant can arise from spikes in organic loading which need to be investigated rather than simply increasing the disinfectant dose. It is of paramount importance that effective disinfection against microbiological hazards must never be compromised in attempting to meet guidelines for disinfectant by-products.	**Philippines**

	We propose the use of “treatment” instead of “preservative” to be consistent with the sentences in the paragraph where treatment was used.	
33	Reuse water from dairy processing operations is known to contain microorganisms that can form biofilms on stainless steel surfaces; as well as pathogenic bacteria, ~~including pathogenic strains of *Escherichia coli*.~~ It is therefore important that reuse water has an appropriate disinfection treatment that achieves the guideline values for the verification of microbial quality appropriate to the intended use. The choice of disinfection treatment should also consider whether a residual disinfectant will persist throughout the maximum storage time of the reuse water, and, if not, then ~~an~~ additional ~~preservative~~ treatment may be needed. Chemical disinfection of water will inevitably generate disinfection by-products whether it is externally sourced water or reuse water. The optimal choice of disinfectant will vary between different dairy manufacturing sites, depending upon their individual milk product range and method of recovering water for reuse, which will affect the organic loading. Unusual depletion of the disinfectant can arise from spikes in organic loading which need to be investigated rather than simply increasing the disinfectant dose. It is of paramount importance that effective disinfection against microbiological hazards must never be compromised in attempting to meet guidelines for disinfectant by-products. Deletion suggested. Should either mention a longer list of common dairy facility pathogens or remove the reference. The term “preservative” is incorrectly used here and also can be viewed as addition of preservatives in the process water, which is not the case. IDF suggests to move the last sentence of this paragraph before paragraph 17 to emphasize its importance.	**IDF/FIL**
WATER REUSE FIT-FOR-PURPOSE ASSESSMENT		
Paragraph 35		
35.5	whether reuse water that has been recycled or recirculated multiple times in a specific process operation ~~which~~ could lead to biofilm formation or significant increase of spore levels;	**Canada**
35.6	Proposed amendments: whether any particular measure for the prevention or control of microbiological growth is required over the established shelf-life of the reuse water supply; Reason: Prevention would make more sense in this context, perhaps the wrong term had been used.	**New Zealand**
35.6	whether any particular measure for the ~~preservation~~ prevention or control of microbiological growth is required over the established shelf-life of the reuse water supply; Incorrect use of term preservation.	**IDF/FIL**
35.7	This needs to ne amendment to be consistent with changes to clause 21 as proposed by NZ.	**New Zealand**
Paragraph 36		
36.2	the reuse water is free of microbiological hazards, for ~~example~~ example, through the use of validated heat treatments before, during or after recovery and reconditioning;	**United Kingdom**
36.2	the reuse water is free of microbiological hazards, for example through the use of validated ~~heat~~ disinfection treatments before, during or after recovery and reconditioning;	**IDF/FIL**

	change to reflect other types of treatments.	
WATER SAFETY MANAGEMENT		
title	**WATER FOR REUSE SAFETY MANAGEMENT** Japan proposes to insert "FOR REUSE" in the title of this section to clarify this section provides recommendations and examples on water REUSE specifically.	**Japan**
title	ICBA recommends the removal of the entire Water Safety Management Section (paragraphs 37 to 79) from Annex III with a relocation into Annex IV and an Annex title revision to “Developing a Water Safety Plan and Applicable Technologies for Recovery and Treatment of Water for Reuse”.	**ICBA**
Paragraph 38		
38	Figure 1 provides an example flowchart and an overview of the aspects that the FBO should consider when establishing measures for a water reuse scenario that is specific to its operation and is validated at full-scale. Adopted General Section and Annex 1 provide decision support system (DSS) tools as examples. Japan suggests that figure 1-3 (as DSS tools) should be examples, so that this draft annex has the concept same as General section and Annex 1.	**Japan**
Figure 1: Steps for implementing measures in a water reuse scenario into full scale operation (Source: adapted from *MRA40, Figure 4)*		
title	**Figure 1: ~~Steps~~ Example of flowchart/steps for implementing measures in a water reuse scenario into full scale operation** (Source: adapted from *MRA40, Figure 4)* Japan proposes to change the title of Figure 1 since the DSS tools in this draft annex should be provided as examples to be consistent with the adopted General Section and ANNEX 1.	**Japan**
Figure 1	Section numbers(e.g. 5.1.1) in Fig.1 should be deleted since these are not relevant to the texts of this draft.	**Japan**
Figure 1	Japan proposes to replace the phrase "hazard control plan" with "control measures for the fit for purpose reuse of water", according to para 45	**Japan**
Prerequisite programmes (PRPs) (*copied from MRA40, some adaptation of terminology to be consistent with the terminology in this guidance*)		
Paragraph 39		
39	It is essential that proper PRPs are in place. All PRPs should be clearly written and supported by procedures and specifications that will minimize hazard entry, spread and increase. In the context of water reuse in a dairy manufacturing operation and for hazard control, PRPs should include in general:	**IDF/FIL**
39.1	measures that ensure the maintenance of good hygienic conditions, such as the ability to conduct Cleaning-In-Place (CIP) and manual cleaning to remove/reduce potential microbiolgical hazards; along with the scope	**Japan**
39.5	measures to prevent/reduce the spread and/or increase of microbiolgocial hazards occurring and/or their levels, for instance, by eliminating dead-ends or pockets in the water distribution system; along with the scope	**Japan**

Paragraph 40		
40.1	Systems for water distribution and recovery and recirculation for both sourcing water as well as reused and ~~recirculation~~ recirculated water should be superimposed on the dairy plant floor plan, drawn to scale with pipelines, valves, hoses, tanks and silo sizes. If possible, flow rates within the water system should be identified either on the plans or via a separate schedule.	**Canada**
40.2	T~~All tanks~~anks, piping for the storage, treatments, and distribution system for ~~(reuse)~~ reuse water in the plants and facilities, should be designed for ~~CIP~~ CIP, as appropriate and be able to withstand heat or cold exposure as needed, as well as extreme pH values. Brackets should be deleted. In the Code of Hygienic Practices for milk and milk products, strict application of CIP to tanks and pipelines are not recommended. Japan proposes to add some flexibility in this bullet.	**Japan**
40.3	As needed and when not circulating or recirculating, the water system should self-drain, when appropriate, While preferred, self-draining should not be viewed as a requirement.	**IDF/FIL**
Paragraph 41		
41.1	All waterline discharge points and water taps should be secured against the backflow from potential contaminants caused by submerged inlets, for ~~example~~ example, in case of loss of pressure.	**United Kingdom**
41.8	All necessary measures should be taken to reduce or ideally eliminate condensation from forming on the outside of pipes and other equipment and to avoid fluctuations in the temperature of water inside the system. This may include things like insulating pipes where temperatures inside the pipes or equipment vary from the temperatures on the outside of pipes or other equipment. Pipelines that are no longer used should be removed. Proposed amendments: ...and to reduce fluctuations... Reason: It may not be possible to prevent temperature variation within piping, however the intent should be that this is reduced as much as possible.	**New Zealand**
41.8	All necessary measures should be taken to reduce or ideally eliminate condensation from forming on the outside of pipes and other equipment ~~and to avoid fluctuations in the temperature of water inside the system~~. This may include things like insulating pipes where temperatures inside the pipes or equipment vary from the temperatures on the outside of pipes or other equipment. Pipelines that are no longer used should be removed. It can be difficult to avoid fluctuations of temperature inside the system. This is a common occurrence in most larger dairy processing facilities and can be addressed through insulated pipelines.	**IDF/FIL**
Paragraph 42		
42.2	Ensure the tightness of the RO membranes to avoid microbiological hazards bypassing the membranes. The “flux” and “life” of the membranes should be monitored and documented to identify when replacement should occur (based on the recommendations by the manufacturer) to ensure their effectiveness and proper performance. Proposed amendments: Ensure the effectiveness of the RO	**New Zealand**

	Reason: “effectiveness” better captures the intent of having RO membranes that are functioning properly.	
42.2	Ensure the ~~tightness~~ effectiveness of the RO membranes to avoid microbiological hazards bypassing the membranes. The “flux” and “life” of the membranes should be monitored and documented to identify when replacement should occur (based on the recommendations by the manufacturer) to ensure their effectiveness and proper performance. “effectiveness” better captures the intent of having RO membranes that are functioning properly.	**IDF/FIL**
42.3	Special attention should be made to check the tightness of gaskets for pipelines and valves connected to piping. Proposed amendments: ..check the integrity of gaskets and seals for pipelines... Reason: “integrity” better captures the intent that the RO membranes are functioning properly. Also “seals” added as they are not necessarily covered under the term “gaskets”	**New Zealand**
42.3	Special attention should be made to check the ~~tightness~~ integrity of gaskets and seals for pipelines and valves connected to piping. “integrity” better captures the intent that the RO membranes are functioning properly. Also “seals” added as they are not necessarily covered under the term “gaskets”	**IDF/FIL**
Paragraph 43		
43.2	All equipment making up the facility’s water system should be emptied when not in use and cleaned regularly based on a hazards evaluation. Historical experience and specific knowledge about the potential problem areas and shortcomings of the facility’s water ~~system~~ system, e.g. stagnant water in pipes/the distribution ~~system~~ system, should be ~~taken into account~~considered. Suggestion of alternate wording.	**Canada**
43.2	All equipment making up the facility’s water system should be ~~emptied when not in use~~ emptied and cleaned regularly based on a hazards evaluation. Historical experience and specific knowledge about the potential problem areas and shortcomings of the facility’s water system e.g. stagnant water in pipes/the distribution system should be taken into account. Water reservoirs used to collect water when the incoming supply is limited or reservoirs for recirculated water used in cooling are generally not emptied when not in use.	**IDF/FIL**
43.3	CIP equipment used for dairy manufacturing plants should conform to applicable regulations, industry best practices, and, manufacturer’s specifications. The specifics (time and temperature) of a CIP regime should be fit for purpose and ~~depends~~ depend on different variables. These include microflora characteristics, quality of reclaimed water from milk, extent and type of fouling.	**Canada**
43.3	Proposed amendments: The specifics (time, temperature flowrate and chemical concentration) of a CIP regime should be fit for purpose and depends on different variable. These can include microflora..... Reason: We have added flow and concentration as these are considered to be the 4 key aspects of CIP. The final sentence was written to appear exhaustive, the addition of “can” would indicate that the following were some examples.	**New Zealand**

43.3	CIP equipment used for dairy manufacturing plants should conform to applicable standards and regulations, industry best practices, manufacturer's specifications. The specifics (time and temperature) of a CIP regime should be fit for purpose and depends on different variables. These include microflora characteristics, quality of reclaimed water from milk, extent and type of fouling. The Philippines proposes to add "standards" in the sentence. Rationale: There are available standards like the European Hygienic, Engineering and Design Group (EHEDG) being followed by different manufacturing facility.	**Philippines**
43.3	CIP equipment used for dairy manufacturing plants should conform to applicable regulations, industry best practices, manufacturer's specifications. The specifics ~~(time~~ (e.g. time, temperature, flowrate and ~~temperature)~~ chemical concentrations) of a CIP regime should be fit for purpose and depends on different variables. These include microflora characteristics, quality of reclaimed water from milk, extent and type of ~~fouling~~fouling , and the characteristics of the surface(s) to be cleaned. Understood that "e.g." means a limited number of examples but it is important that flowrate and chemical concentration be included in any listing of this nature, whether it is a complete or incomplete list.	**IDF/FIL**
43.4	If an automated CIP system is out of operation for more than a certain period of time (to be determined by a hazard analysis), it should be evaluated prior to use. If not assessed, cleaning should be conducted prior to use if the CIP system has been out of operation for approximately 24 hours or longer.	**Canada**
43.5	During cleaning, all pipe and tank parts should be able to withstand cleaning and disinfection procedures in place, such as temperatures and chemicals. ~~It is recommended~~ The time and temperatures should be fit for purpose and depends on different variables, for example, to heat pipe and tank parts to at least 60 °C for at least 30 minutes. If the equipment can withstand it, 80 °C for at least 10 minutes ~~is preferred~~. For consistency with the 3rd bullet in the same para, the values should preferably be provided as examples.	**Japan**
43.5	During cleaning, all pipe and tank parts should be able to withstand cleaning and disinfection procedures in place, such as temperatures and chemicals. It is recommended to heat pipe and tank parts to at least 60 °C for at least 30 minutes. If the equipment can withstand it, 80 °C for at least 10 minutes is preferred. Stakeholders have suggested revising rewording of this sentence. Reason: The intent of this paragraph is to ensure that the equipment is designed to withstand the cleaning conditions, however, conditions for cleaning vary in their use of chemicals, temperatures and durations. Whilst in many instances, it is useful that pipework and tanks can cope with pasteurisation conditions (63°C/30 min or 72°C/15 sec) and above, a specific risk assessment would be necessary to prescribe such conditions.	**New Zealand**
43.5	During cleaning, all pipe and tank parts should be able to withstand cleaning and disinfection procedures in place, such as temperatures and chemicals. ~~It~~ Where additional heating is ~~recommended to heat~~ required, all pipe and tank parts should be designed to ~~at least 60 °C for at least 30 minutes. If the equipment can~~ withstand ~~it~~elevated temperatures, ~~80 °C for at least 10 minutes is preferred.~~based on manufacturer's recommendations and the intended use of this equipment.	**IDF/FIL**

	IDF suggests rewording to remove specific limitations. The temperatures and times listed are not applicable to all situations and have not listed source reference. It is preferable to let the manufacturer or their customer decide on what are specific elevated temperatures.	
Paragraph 44		
44	Almacenamiento de agua: En relación al numeral 44 del Anexo III, el CCFH Perú solicita se evalúe si el parámetro químico "acidez valorable" va ser considerado para la validación y/o monitoreo, según se menciona en el numeral 44 del Anexo III, en razón que de la revisión de las Guías para la calidad del agua de consumo humano, el documento denominado "Visión global de las regulaciones y estándares nacionales para la calidad del agua potable" ambos publicados por la OMS, así como legislación nacional Reglamento aprobado con D.S. 031-2010-SA basada en la OMS, no se encuentra considerado dicho parámetro. El CCFH considera que el parámetro de pH sería suficiente para el control de neutralidad del agua potable (6,5 – 8,5), más aún que no se tiene límites para el parámetro acidez.	**Peru**
44.1	Potable water and reuse water intended for-food-contact application can normally be stored without temperature control (e.g. 15-20 °C in temperate and subtropical conditions) for a limited period (e.g. up to two days) if the nutrient levels that can support microbial growth is limited (can be approximated by measuring turbidity), as applicable. To add "as applicable" in the statement because nutrient levels available to support microbial growth depend on ambient temperatures, initial microbiological profile of reuse water and other climatic conditions in different regions/countries adapting to these guidelines.	**Philippines**
44.2	Proposed amendment: Storage of reuse water at other temperatures can be acceptable based on a risk assessment if combined with an ongoing microbiocidal treatment, e.g. by continuous recirculation through an UV treatment system, ozonation, chlorination or by a heat treatment. Reason: It is important that at these other temperatures that the risk is considered in conjunction with the proposed treatment to ensure that the water will be fit for intended purpose.	**New Zealand**
44.2	Shelf-life can be extended if water is refrigerated (e.g. < 7 °C, measured at the top of the tank where the water is warmest) or hot (e.g. minimum 60 °C, measured at the bottom of the tank where the water is coldest). Storage of reuse water at other temperatures can be acceptable if combined with an ongoing microbiocidal treatment, e.g. by continuous recirculation through an UV treatment system, ozonation, chlorination or by a heat treatment. Specifying temperature is appropriate but the best point to measure is dependant on system design and may not be at top or bottom.	**New Zealand**
44.2	Shelf-life can be extended if water is refrigerated (e.g. < 7 °C, measured at the top of the tank where the water is warmest) or hot (e.g. minimum 60 °C, measured at the bottom of the tank where the water is coldest). Storage of reuse water at other temperatures can be acceptable based on a risk assessment if combined with an ongoing microbiocidal treatment, e.g. by continuous recirculation through an UV treatment system, ozonation, chlorination or by a heat treatment.	**IDF/FIL**
44.4	The maximum storage time of any water should be established and validated based on monitoring and testing the potable or reuse water with regard to key microorganisms (such as total bacteria count, coliform or Enterobacteriaceae counts, Pseudomonas counts), turbidity, pH, and titratable acidity, as well as organoleptic indicators (primarily ~~smell~~ odor and appearance). for consistency.	**IDF/FIL**

Establishment of control measures		
title	Fish and Fresh Produce annexes don't have a similar section (HACCP control). Some of the information from paragraphs 45 to 65 is elaborated in the General Principles of Food Hygiene (CXC 1-1969). Consider if only the information specific to dairy and the examples should be kept in this Annex.	**Canada**
Paragraph 48		
48	Figure 2 provides an ~~overview~~ example of input from an assessment to develop control measures for the fit for purpose reuse of water. Japan proposes to replace "overview" with "example" to align with the title of Fig 2 (please refer to our comment on Fig 2).	**Japan**
Figure 2: Potential fit for purpose assessment questions that provide insights and inputs into the development of control measures for the safe reuse of water (*Source; adapted from MRA40, Figure 1)*		
title	**Figure 2: ~~Potential~~ Examples of potential fit for purpose assessment questions that provide insights and inputs into the development of control measures for the safe reuse of water** (*Source; adapted from MRA40, Figure 1)* Japan proposes to add "Example of" to the title of Figure 2 since the DSS tools in this draft annex should be provided as examples to be consistent with the adopted General Section and ANNEX 1.	**Japan**
Figure 3: Integration of control measures for the fit for purpose reuse of water into the food safety/HACCP system (*Source: adapted from MRA40, Figure 2*).		
title	**Figure 3: ~~Integration~~ Example of flowchart for integration of control measures for the fit for purpose reuse of water into the food safety/HACCP system** (*Source: adapted from MRA40, Figure 2*). Japan proposes to add "Example of flowchart for" to the title of Figure 3 since the DSS tools in this draft annex should be provided as examples to be consistent with the adopted General Section and ANNEX 1.	**Japan**
Figure 3	Since the right side of Fig. 2 and the left side of Fig. 3 are same (redundant), it is supposed to be needed to discuss whether to keep Fig. 3 in the draft annex.	**Japan**
Figure 3	In the bottom right frame, the description "cover chemical and physical hazards" should be deleted since those are out of scope of this draft.	**Japan**
Figure 3	It is supposed to need to clarify the linkage the lower right circle (i.e. 2. Control measures...) to this flowchart. When the linkage is not clear, deletion of the circle is preferabl	**Japan**
Selection of measures to control identified hazards		
Paragraph 51		
51	Based on the identification of the hazards to be controlled, appropriate control measures should be selected. The need for possible critical control points (CCPs) ~~within procedures~~ based on the HACCP principles should be considered, e.g. at the reconditioning of the reuse water when the proper performance of the reconditioning process (such as temperature and time) is essential for acceptable hazard control and no other controls are in place after the reconditioning step. Words not necessary.	**IDF/FIL**
Paragraph 53		
53	When non-reconditioned water is fit for purpose, and when the food is subjected to microbiocidal treatments at a later step, there are no CCPs related to the verification of reconditioning performance.	**Canada**

	The intent of this sentence is not clear. Consider deleting the sentence if not necessary or improve the sentence. The term "non-reconditioned" water is not used elsewhere in this document. Suggest to define non conditioned or to use another term.	
Paragraph 54		
54	To improve the microbiological quality of water, processing steps such as heating, chlorination, ozonation or UV treatment can be used. Suggest to modify the text. We believe these processes are examples and that other options can be used.	**Canada**
54	Proposed amendment: To improve the microbiological quality of water, disinfection treatments such as; heating, chlorination, ozonation, membrane filtration or UV treatment can be used. Reason: This amendment makes it clear the list following are examples and not exhaustive	**New Zealand**
54	To improve the microbiological quality of water, heating, chlorination, ~~ozonation or~~ ozonation, UV treatment, membrane filtration or other disinfection treatment can be used. Membrane technology is being commonly used to reduce microbial loads in water, particularly water intended for reuse.	**IDF/FIL**
Monitoring		
Paragraph 57		
57	Monitoring data across subsequent reuse water batches being generated should be plotted for trending purposes to help benchmark information to be used in building confidence over the systems of reuse water. When the water reuse systems are consistently performing well, signals can be ~~early~~ detected early when the operation or control measures may be trending towards failure, or when an out-of-control situation may develop. Trend analysis is a powerful operational management tool advocated both for water safety plans and food safety plans.	**Canada**
57	Japan suggests that the use of the phrase "water safety plans and food safety plan" should be re-considered in the view of consistency with Section "Establishment of control measures"	**Japan**
Corrective actions		
Paragraph 58		
58	In the event of a loss of control situation (i.e., in case the system overall or control measures during reuse water generation or use fail, resulting in a potentially unsafe water), This section of the sentence is not clear and could be improved.	**Canada**
58.1	identify the problem and analyze the root cause, correct the problem and establish corrective measures to prevent recurrence; amend the control measures, or other aspects of the reuse water generation system or the food safety management system, as appropriate; Proposed amendment: remove the word generation Reason: Control measures should apply to the whole reuse water system rather than the generation part of the reuse water system.	**New Zealand**
58.1	identify the problem and analyze the root cause, correct the problem and establish corrective measures to prevent recurrence; amend the control measures, or other aspects of the reuse water ~~generation~~ system or the food safety management system, as appropriate; word generation not needed.	**IDF/FIL**

58.6	switch the use of reuse water to a lower level fit-for-use criteria, i.e. from for direct food-contact application to indirect food-contact application; consider an increase in monitoring frequency until confidence in the control has been regained with the understanding that monitoring frequency alone is not likely to be able to demonstrate with a high level of confidence that the water supply quality is under control again;	**Canada**
Verification and testing		
Paragraph 61		
61.2	conducting an audit on the water safety management system;	**IDF/FIL**
Paragraph 62		
62	Routine testing of reuse water for pathogens is not recommended, because the level of pathogens in reuse water, if present, are likely to be present at very low populations making detection by reasonable sampling plans improbable. It is more practical to test for suitable indicator microorganisms to verify process control and to identify potential out-of-control situations. Suitable indicator microorganisms generally occur in reuse water at levels that allow quantification. However, enhanced sampling and testing for pathogens would be warranted during validation of reconditioning processes or during an event where a loss of control may have resulted in reuse water becoming contaminated with pathogens. Such water should ~~often~~ be discarded**.**	**Canada**
Paragraph 63		
63	Microbiological testing and analysis of indicator ~~microorganisms~~ microorganisms, such as total viable count or coliforms in water, have proven to be useful in many circumstances. However, the microflora relevant for verification of reuse water often is plant or operation specific. It is, therefore, essential to conduct an operation-specific study to determine which microbiological parameters/indicator organisms may be appropriate for use in evaluating a particular water reuse scenario.	**Canada**
Paragraph 65		
65	Examples of microorganisms and their limits that can be considered for the monitoring of certain reuse water can be found in Section 6.3 of the FAO/WHO meeting report “Safety and quality of water use and reuse in the production and processing of dairy products” (MRA40)[12]. These are examples only and other limits or criteria could be applicable. NEW It should be noted that “utility organisms” are not “indicator microorganisms” as they do not generally have any pathogenic characteristics. Utility organisms are an entirely different category of organisms. An example of a utility organism is “Pseudomonas” and “Total Plate Count”, both of which are useful in determining whether water is fit for purpose, but neither of which are indicator organisms. In the context of reused water monitoring, these microorganisms is useful. IDF suggests replacing the note 10 about utility microorganisms under the definition of indicator microorganisms, with a paragraph here, to better explain what utility microorganisms are, how they differ from indicator microorganisms, and state that their monitoring is useful.	**IDF/FIL**
EXAMPLES OF FIT-FOR-PURPOSE REUSE WATER APPLICATIONS		
Examples of water fit-for-purpose decision tools		
Table 2: Overview of fit-for-purpose considerations for different applications and types of water		
Table 2	Section in Table under RECIRCULATED WATER - Fit-for-purpose as recovered if no significant hazards are present or food contact is avoided (Removed comma after present) Section in Table under RECLAIMED WATER - Fit for purpose if no significant hazards present either as recovered or after reconditioning. (Removed comma after recovered)	**Canada**

Table 2	Table 2 needs to be corrected for the 'Recirculated Water' category. As per the definition from the JEMRA Guideline document (Recirculated water: Water reused in a closed loop for the same processing operation without replenishment), the listed 'direct food contact' application is not feasible. Also, it is unclear how a CIP process can be closed loop where the soil must be removed. Strong concern that if use is allowed until significant hazards are identified without some type of preventive approach, it will guarantee contaminated water will be used which will contaminate equipment and dairy products.	**IDF/FIL**
Paragragh 67		
67	The examples below are for illustrative ~~use~~use only. Any reuse scenario should be based on a proper hazard analysis before implementation.	**Canada**
Example of reuse of potable water by recirculation or recycling		
Paragragh 68		
68	After introducing potable water in a closed system, the water is recycled for a specific number of times. The number of acceptable cycles is based on the assessment of maximum levels of predefined parameters (e.g. microbiological criteria). The recycled water is then disposed of from the ~~system,~~ system or is treated with a microbiocidal treatment (e.g. heat, UV or chemical disinfectants) when the number of acceptable cycles has been reached. Removed comma	**Canada**
Figure 4: Scheme shows the recirculation of water used for cooling cheeses.		
Figure 4	In case of recycling, the same principle should be applied, but before the water is ~~being~~ reused, a step of reconditioning/treatment should be applied as necessary.	**Canada**
Example of recovery and reuse of water from CIP systems		
Paragragh 70		
70	CIP systems are used in dairy manufacturing plants to remove product residues from food-contact surfaces and to remove or reduce biofilm formation. A CIP system consists of a number of consecutive rinsing and cleaning steps using fit-for-purpose water at minimum designated temperatures, flow rates, pressures and concentration of chemicals in which the fit-for-purpose water needs to comply with different microbiological, physical and/or chemical parameters. On certain occasions, water used within a step can be recycled for the same step or an earlier step, e.g. potable water needed for the final rinsing step can be recycled for earlier rinsing. This is illustrated in Figure 5, which is derived from a detailed example of the use of a CIP system that can be found in case study 3 of Annex 4 of MRA40.	**Canada**
70	Proposed amendments: A CIP system consists of a number of consecutive rinsing cleaning and disinfection steps using fit-for-purpose..... Reason: CIP systems are designed to clean and sanitise, therefore we have added disinfection.	**New Zealand**
70	CIP systems are used in dairy manufacturing plants to remove product residues from food-contact surfaces and to remove or reduce biofilm formation. A CIP system consists of a number of consecutive ~~rinsing and~~ rinsing, cleaning and disinfection steps using fit-for-purpose water at minimum designated temperatures, flow rates, pressures and concentration of chemicals in which the fit-for-purpose water needs to comply with different microbiological, physical and/or chemical parameters. On certain occasions, water used within a step can be recycled for the same step or an earlier step, e.g. potable water needed for the final rinsing step can be recycled for earlier rinsing. This is illustrated in Figure 5, derived from a detailed example of the use of a CIP system that can be found in case study 3 of Annex 4 of MRA40.	**IDF/FIL**

	for consistency.	
Example of recovery and reuse of water from food production/processing (reclaimed water)		
Paragragh 71		
71	Water present in milk or milk products can be recovered during processing (reclaimed water) and reused. Reclaimed water can be obtained from different processes which will determine its microbiological safety and its need for reconditioning. Examples are condensate from evaporation processes, casein wash water, ~~whey permeate~~milk, ~~various~~ whey and other permeates with additional treatments and milk product rinse water.	**IDF/FIL**
Paragragh 72		
72	This condensate from evaporation processes contains organic materials and chemical compounds such as milk solids and lactic acid, but it is generally very pure. Therefore, it can be used directly or be treated in a RO or ROP systems for reuse if it meets fit-for-purpose water criteria as a food ingredient or for cleaning and disinfection of food-contact material. Suggest adding the following words to be clear.	**Canada**
72	This condensate contains organic materials and chemical compounds such as milk solids and lactic acid, but it is generally very pure. Therefore, it can be used directly or ~~be~~ treated in a RO or ROP systems for reuse if it meets fit-for-purpose water criteria as a food ingredient or for cleaning and disinfection of food-contact material.	**IDF/FIL**
Paragragh 73		
73	Casein wash water, ~~and~~ whey ~~permeate~~ permeate, lactose permeate, milk permeate and some other types of permeates are a good source of reuse water but may support microbiological growth due to the presence of small amounts of milk solids such as milk proteins or lactose. Reusing water conditions should therefore be carefully assessed, monitored and verified. Treatment/purification steps such as RO and UF should be considered. Do we need to define what is a casein wash water. Is it wash water from washing cheese curds?	**Canada**
73	Casein wash water, and ~~whey permeate~~ milk, whey, lactose ~~permeate~~ and some other types of permeates are a good source of reuse water but may support microbiological growth due to the presence of small amounts of milk solids such as milk proteins or lactose. Reusing water conditions should therefore be carefully assessed, monitored and verified. Treatment/purification steps such as RO and UF should be considered.	**IDF/FIL**
Paragragh 74		
74	Milk p~~Product~~ roduct rinse water could be water recovered from the initial rinsing of pipes or tanks for milk and consists of a mixture of water and milk, milk-based food materials and deposits. Depending on the place of rinsing (e.g. equipment before or after pasteurization of the milk) and the presence/absence of biofilms, microbiological contamination might ~~be different~~vary. Treatment of recovered and stored rinse water to inhibit microbiological growth may need to be considered.	**Canada**
Example of recovery and reuse of dairy effluents		
Paragragh 76		
76	Effluents from dairy manufacturing plants such as dairy processing wastewater or sewage (wastewater from showers, bathrooms, toilets, wash stations etc.) that contain human pathogens, may be captured, treated and reused for certain applications when subjected to appropriate treatment and fit for purpose assessment and management ~~measures~~measures are in place. These effluents may not only contain milk constituents supporting microbiological growth, but other hazardous substances.	**Canada**

Example of water recovery and reuse from non-food manufacturing operations		
Paragragh 78		
78	Water originating from external sources such as private wells may vary in chemical, microbiological and physical content, and may contain unidentified components. If the manufacturing facility has its own wells, the water may or may not be potable. This will need to be determined through a collection of data that includes microbiological sampling and testing as well as organoleptic evaluation. ~~Consideration should also be given to identifying~~ Identification of the pH, turbidity, nitrate level and hardness of such ~~water~~water may also be helpful. This will need to be determined through an appropriate evaluation. If the well water has come in contact with surface water, it will most likely have microbial contamination but can still be used if properly treated or for any qualifying fit-for-purpose use. A fit-for-purpose assessment and management measures are needed to identify likely hazards and controls to minimize or eliminate them. Treatment of the water, if needed, should be captured in the HACCP plan. We are not certain to what extent the nitrate level or hardness are really necessary for microbiological evaluation.	**Japan**
78	Water originating from external sources such as private wells may vary in chemical, microbiological and physical content, and may contain unidentified components. If the manufacturing facility has its own wells, the water may or may not be potable. This will need to be determined through a collection of data that includes microbiological sampling and testing as well as organoleptic ~~evaluation~~evaluation (odor and appearance). Consideration should also be given to identifying the pH, turbidity, nitrate level and hardness of such water. This will need to be determined through an appropriate evaluation. If the well water has come in contact with surface water, it will most likely have microbial contamination but can still be used if properly treated or for any qualifying fit-for-purpose use. A fit-for-purpose assessment and management measures are needed to identify likely hazards and controls to minimize or eliminate them. Treatment of the water, if needed, should be captured in the HACCP plan. Added odor and appearance, not suggest tasting.	**IDF/FIL**

Annex IV: Technologies for recovery and treatment of water for reuse

title	INTRODUCTION PURPOSE AND SCOPE This annex contains an overview of technologies for the recovery and treatment of reuse water with recommendations for their safe application. While these technologies are often used in dairy production, they can be used in other sectors as well. USE Where applicable, the recommendations in this annex can be used for Annex I, II and III of these Guidelines. Comment: The format of other annexes should be applied here to introduce this annex. Some initial sentences are proposed, but should be elaborated further.	**Canada**
title	(general comment) Japan proposes to maintain the draft Annex IV texts as a Codex information document since the draft texts provide information/examples in detail on current technologies for water reuse. When the above proposal is accepted, Japan recommends making a cross-reference to a Codex information document (i.e. the draft Annex IV texts) in Introduction of the General section. If the guidance on hygiene practices exist in the draft Annex IV texts, Japan proposes to put them back to the original, Annex 3, as they are recommendation on milk and milk products provided by JEMRA report (MRA40).	**Japan**
title	Question 1: Whether you consider a restricted revision of the General Section appropriate with the purpose to introduce a cross-reference to this new Annex IV; Answer: The Annex is very dairy centric. Would support such an Annex but it would need to be drafted and address the types of treatments that are used by other sectors. Question 2: Whether you consider a restricted revision of the Annex I on Fresh Produce appropriate with the purpose to introduce a cross-reference to this new Annex IV and indicate which technologies are most relevant for Annex I Answer: Not applicable with regard to fish	**New Zealand**
title	We would suggest considering this annex for inclusion in the General Section. As other information of general relevance is to be found there, we find the General Section an intuitive place to present the information. A possible placement can be after Section 3, before the Annexes. If Annex IV is included in the General Section, the definitions in the Annex should be included in the general definitions. The annex has several references to practices in diary plants and diary production. According to the EWG report this Annex would be relevant for the sectors covered in the other annexes. Therefore, we suggest better clarifying this relevance.	**Norway**
title	Uruguay entiende que debe ampliarse en el texto a diferentes industrias no solo referirse a la industria láctea.	**Uruguay**

title	The United States generally supports the creation of the new Annex IV -Technologies for recovery and treatment of water for reuse given that the treatment processes/technologies discussed are not unique to dairy or dairy processing and apply more broadly to all water reuse. The United States believes that an appropriate name for Annex IV may be “Developing a Water Safety Plan and Applicable Technologies for Recovery and Treatment of Water for Reuse.”	**USA**
title	IDF understands the content of this document will not be discussed in details until it is agreed to address the technologies in a separate annex. Therefore IDF did not provide detailed comments at this stage but would suggest that technologies for waste water should be covered. Also recommendations should be included on the importance of appropriate hygienic design. When appropriate, IDF can provide some corrections that are needed in several paragraphs.	**IDF/FIL**
DEFINITIONS		
title	As this annex is for all water for reuse, the language should be more general and less specific to dairy.	**Canada**
Retentate	We believe this term is specific to the dairy sector, consequently, it should be moved to the definitions in annex III and a more general term could be used in this annex.	**Canada**
Retentate	Specific comment: Consider if this definition is more appropriate in Annex III as other definitions for membrane filtration are found in that Annex.	**New Zealand**
Retentate	~~**Retentate:** the product obtained by concentrating milk constituents using membrane filtration (UF /MF/ RO / Reverse Osmosis and Polishing water (ROP)/ NF) technology for milk or milk products *(editorial from MRA40).*~~ The other definitions specific to the use of membrane filtration are found in Annex III. They are all related so need to all be in Annex III or removed and placed in Annex IV.	**IDF/FIL**
Reverse Osmosis water (RO water)	**Reverse Osmosis water (RO water):** water, including reclaimed water, generated by membrane filtration with membranes of 0.001-0.0001 mm (1.0-0.1 nm) pore size and under high-water pressure which overcomes osmotic resistance, forcing water from the feed stock to the permeate side of the membrane resulting in a concentrated product ~~(retentate)~~ and recovering the water *(adapted from MRA40 since considering “feed side” more appropriate/clear than “retentate side” + 2 editorial improvements):* As per our comment on the retentate definition, if the definition is moved to the dairy annex, the word can be deleted in the RO definition.	**Canada**
Reverse Osmosis water (RO water)	Proposed amendments: Reverse Osmosis water (RO water): water, including reclaimed water, generated by membrane filtration with membranes of 0.001-0.0001 mm (1.0-0.1 µm) pore size and under high-water pressure with overcomes osmotic resistance, forcing water from the feed stock to the permeate side of the membrane resulting in a concentrated product (retentate) and recovering the water (adapted from MRA40 since considering “feed side” more appropriate/clear than “retentate side” + 2 editorial improvements): Reason" Correction in units is required, it is unclear if the mm or the nm should be changed, however, one of them needs to be.	**New Zealand**
Reverse Osmosis water (RO water)	ICBA supports and agrees with the addition of “feed side” within the definition, as it is clearer and more specific.	**ICBA**
Reverse Osmosis water	**Reverse Osmosis water (RO water):** water, including reclaimed water, generated by membrane filtration with membranes of 0.001-0.0001 ~~mm~~ µm (1.0-0.1 nm) pore size and under high-water pressure which overcomes osmotic resistance, forcing water from the feed stock to the	**IDF/FIL**

(RO water)	permeate side of the membrane resulting in a concentrated product (retentate) and recovering the water *(adapted from MRA40 since considering "feed side" more appropriate/clear than "retentate side" + 2 editorial improvements):* Correction needed.	
TECHNOLOGIES		
Paragragh 1		
1	Several technologies have been developed to recover and/or treat water from ~~dairy plants~~ food production or processing for reuse. Reconditioning may use treatments or a combination of treatments such as membrane filtration, UV-treatment, or microbiocidal treatments (e.g. chlorination or ozonation). Such reconditioning treatment should be validated considering the source of reuse water and the final intended use of the water to ensure fitness for purpose. Certain parameters of the treatments should be monitored to ensure efficacy. Biocides used for reconditioning treatments may be subject to approval by the competent authority.	**Argentina**
1	Several technologies have been developed to recover and/or treat water ~~from dairy plants~~ for reuse. Reconditioning may use treatments or a combination of treatments such as membrane filtration, UV-treatment, or microbiocidal treatments (e.g. chlorination or ozonation). Such reconditioning treatment should be validated considering the source of reuse water and the final intended use of the ~~water~~ water, to ensure fitness for purpose. Certain parameters of the treatments should be monitored to ensure efficacy. Biocides used for reconditioning treatments may be subject to approval by the competent authority. To include general language for the other food sectors where technologies are used for water reuse. Also added a comma after "use of the water,"	**Canada**
Paragragh 2		
2.1	Determination of chemical, microbiological and physical characteristics of the water and possible side effects taking into account, when applicable, pre- and post-treatment;	**Saudi Arabia**
2.3	method of capture, storage and treatment of water intended for reuse;	**Canada**
2.4	acceptable end-use applications and criteria of the water intended for reuse; It is not clear what criteria means in this context. Are we referring to microbiological water specifications or something else?	**Canada**
Paragragh 3		
3	Technologies are constantly evolving and improving and therefore this appendix is ~~likely~~ not ~~to be fully up to date. Other technologies, such as ultrasonication or bactofugation can also be an option~~exhaustive. Simpler language is proposed and consequently, we propose to remove the mention of other technologies.	**Canada**
3	Technologies are constantly evolving and improving and therefore this ~~appendix~~ annex is likely not to be fully up to date. Other technologies, such as ultrasonication or bactofugation can also be an option.	**Japan**
Recovery by sedimentation, coagulation and centrifugation		
Paragragh 4		
4	Estas tecnologías se pueden aplicar, solas o combinadas, a los efluentes (por ejemplo, de la fabricación de productos lácteos). Se deberían considerar tratamientos preliminares, ya que no eliminan todos los contaminantes, incluidos los patógenos que puedan estar presentes. Estas tecnologías deberían ir seguidas de procedimientos de tratamiento del agua recuperada de los efluentes para reducir o eliminar la presencia de	**Uruguay**

	agentes patógenos a fin de cumplir los requisitos para algunos tipos de agua reutilizada adecuada para su uso en aplicaciones en contacto directo o indirecto con alimentos. Uruguay sugiere colocar ejemplos de diferentes tratamientos preliminares aplicables (biorreactores, carbón activado,etc.)	
Purification technologies		
Paragragh 5		
5	Several membrane purification methods can be applied ~~in dairy manufacturing plants~~ such as reverse osmosis (RO), nanofiltration (NF), ultrafiltration (UF) and microfiltration (MF). Their differences in performance for water purification are illustrated in Figure 1.	**Argentina**
5	Several membrane purification methods can be applied in ~~dairy~~ manufacturing plants such as reverse osmosis (RO), nanofiltration (NF), ultrafiltration (UF) and microfiltration (MF). Their differences in performance for water purification are illustrated in Figure 1. Suggest to delete this word if the information is also relevant to sectors other than dairy.	**Canada**
Paragragh 8		
8	Other membrane filtration technologies (MF, UF and NF) are typically used before RO to reduce fouling of the RO membrane (build-up of organic matter) and to enhance maintenance of constant flux/flow through the RO membrane. These filtration technologies by themselves, may not remove all microorganisms (including pathogens) that may be present in the water and further treatment, such as disinfection and ~~purification~~ purification, may be required for fit-for-purpose water applications. Addition of a comma	**Canada**
Microbiocidal treatments		
Paragragh 12		
12	UV treatment of reuse water can be used to reduce some populations of bacteria, viruses, moulds, yeast and protozoa. Continuous monitoring, regular maintenance and cleaning, and correct calibration of the treatment parameters are essential to maintain the microbiocidal effect. ~~Some further~~ Further treatments may be required downstream. Critical factors to consider are:	**Canada**
12	Proposed amendments: 12. (was 15). Chlorine, chlorine dioxide, ozone and … 13. (was 14). Heat treatment, such as pasteurization or … 14. (was 12). UV treatment of reuse water can be used to … 15. (was 13). UV Treatments systems must be set up to … Reason: When considering treatment options these should be ordered differently to reflect both the global use as well as the effectiveness of each disinfection treatment. The disinfection treatments in paragraph 15. are extremely important for the safe use of reuse water globally, and these treatments therefore require far more prominent placement in the Annex.	**New Zealand**
Paragragh 14		
14.1	treatment parameters ~~(e.g. minimum temperature and holding time, those appropriate for pasteurization of milk are acceptable; alternative parameters~~ should be validated to eliminate the risk of pathogens and spoilage organisms); Suggest to remove. If the treatment parameters from pasteurization are used for water reuse from other commodities, are we sure that the parameters are acceptable for another food?	**Canada**

Paragragh 15		
15	Chlorine, chlorine dioxide, ozone and peracetic acid are ~~the chemicals most commonly~~ chemical products widely used for the ~~microbiocidal~~ microbicide treatment of water in ~~dairy~~ food production plants. They should be used in accordance with the label instructions and may be subject to competent authorities' requirements. The following considerations should be made:	**Argentina**
15	Chlorine, chlorine dioxide, ozone and peracetic acid are the chemicals most commonly used for the microbiocidal treatment of ~~water in dairy plants~~water. They should be used in accordance with the label instructions and may be subject to competent authorities' requirements. The following considerations should be made: More generalized language is proposed.	**Canada**
15	As per previous comment this paragraph should be elevated to paragraph 12.	**New Zealand**
15.1	Reuse water from ~~dairy~~ food processing operations is known to contain microorganisms that can form biofilms on stainless steel surfaces as well as pathogenic bacteria, including pathogenic strains of Escherichia coli. It is therefore important that reuse water has an appropriate disinfection treatment that achieves the guideline values for the verification of microbial quality appropriate to the intended use;	**Argentina**
15.1	Reuse water from ~~dairy~~ processing operations is known to contain microorganisms that can form biofilms on stainless steel surfaces as well as pathogenic bacteria, including pathogenic strains of Escherichia coli. It is therefore important that reuse water has an appropriate disinfection treatment that achieves the guideline values for the verification of microbial quality appropriate to the intended use; If the information in this sentence applies to other processing operations, we suggest adding a more generic sentence.	**Canada**
15.1	Reuse water from dairy processing operations is known to contain microorganisms that can form biofilms on stainless steel surfaces as well as pathogenic bacteria, including pathogenic strains of Escherichia coli. It is therefore important that reuse water has an appropriate disinfection treatment that achieves the guideline values for the verification of microbial quality appropriate to the intended use; Proposed amendment: ....guideline values for the verification of microbial quality appropriate at the point of use within the water distribution system that is furthest from the treatment; Reason: Microbial testing needs to address that water is fit for purpose at the point of use rather than from its recovery through until the point of use, which could be the furtherest point, in the water distribution network, away from the treatment.	**New Zealand**
15.2	the choice of disinfection treatment should also consider whether a residual disinfectant will persist throughout the maximum storage time of the reuse water, and, if not, then an additional preservative may be needed; the optimal choice of disinfectant will vary between different dairy manufacturing sites, depending upon their individual milk product range and method of recovering water for reuse, which will affect the organic loading; unusual depletion of the disinfectant can arise from spikes in organic loading which need to be investigated rather than simply increasing the disinfectant dose. This is dairy specific, suggest making it more generic.	**Canada**
15.2	the choice of disinfection treatment should also consider whether a residual disinfectant will persist throughout the maximum storage time of the reuse water, and, if not, then an additional preservative may be needed; the optimal choice of disinfectant will vary between different dairy manufacturing sites, depending upon their individual milk product range and method of recovering water for reuse, which will affect the organic	**New Zealand**

	loading; unusual depletion of the disinfectant can arise from spikes in organic loading which need to be investigated rather than simply increasing the disinfectant dose. Proposed amendments: ....and, if not, then an additional treatment may be.... Reason: editorial amendment	
15.3	~~resistance among microorganisms to disinfectants may be build up; this can be counteracted by change of disinfectants after a certain period of use;~~ We could not find the basis of this guidance in the JEMRA report (MRA40).	**Japan**
15.4	Proposed amendment: ....permeate and are exposed to chlorine, in any form, the result can be chloramines, chlorate, perchlorate and trihalomethanes. Chloramine; is significantly less effective at inactivating pathogens, especially viruses, and also react slower as compared to free chlorine. Chloramine ; nevertheless, has the advantage of being more persistent. Reason: Whilst chloramine (NH2Cl) is a known water disinfectant, neither chlorate or perchlorate are water disinfectants.	**New Zealand**
Technologies specific for certain food		
Paragragh 16		
16	Given that Annex IV is not intended to be specific to dairy but used more broadly, ICBA recommends removal of any reference to dairy throughout the annex unless the reference applies specifically to the commodity so as to prevent confusion with the Annex's broader application.	**ICBA**